CRITTALL CASEMENT

Webster
AND SONS LIMITED
724 CANADA CEMENT BUILDING
MONTREAL, P. Q.

P. WINDSOR.

THE CRITTALL MANUFACTURING COMPANY LIMITED

Head office : 210, High Holborn, WC1 - Holborn 6612-9

AYLESBURY, BUCKS	*6 Bourbon Street*	*Aylesbury 392*
BELFAST	*10 Royal Avenue*	*Belfast 26570*
BIRMINGHAM	*65 New Street*	*Birmingham Midland 1935*
BRAINTREE	*Manor Works*	*Braintree 106*
BRIGHTON	*Sun Buildings, 139 North Street*	*Brighton 6507*
BRISTOL	*Bath Road, Brislington*	*Bristol 77021*
CHELMSFORD	*Wenley House, London Road*	*Chelmsford 3493*
DONCASTER	*Watch House Lane*	*Doncaster 3477-8*
EXETER	*25 Catherine Street*	*Exeter 2032*
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KINGSTON-ON-THAMES	*30-32 Thames Street*	*Kingston 1231*
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LEICESTER	*Evington Valley Road*	*Leicester 24546*
LIVERPOOL	*North House, North John Street*	*Bank 4747*
MANCHESTER	*Talbot Road, Stretford*	*Longford 1151-2-3*
NEWCASTLE-ON-TYNE	*Carliol House*	*Newcastle 24511*
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SOUTHAMPTON	*12 High Street*	*Southampton 5225*
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AUSTRALIA	*The Crittall Manufacturing Co. (Australia) Pty. Ltd.,* *Sydney, Melbourne, Brisbane, Adelaide and Perth.*
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NEW ZEALAND	*Crittall Metal Windows (N.Z.) Ltd.,* *Auckland, Dunedin, Christchurch, Invercargill and Wellington*
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and agencies in : BARBADOS : BERMUDA, Hamilton : BORNEO, Sandakan : BURMA, Rangoon : CEYLON, Colombo : CHILE, Santiago : COSTA RICA, Juan Viñas : CYPRUS, Nicosia : EGYPT, Cairo : FEDERATED MALAY STATES, Singapore, Kuala Lumpur, Penang and Ipoh : FIJI, Suva : GOLD COAST, Accra : IRAK, Baghdad : JAMAICA, Kingston : KENYA, Nairobi and Mombassa : NIGERIA, Lagos : NYASALAND, Cholo : SIAM, Bangkok : SUDAN, Khartoum : TANGANYIKA, Dar-es-Salaam, Tanga and Chunya : TRINIDAD, Port of Spain.

Works at : Dublin, Dusseldorf, Johannesburg, Melbourne, Shanghai and Washington

CRITTALL CASEMENT

Catalogue No. 101

THE CRITTALL MANUFACTURING COMPANY LTD.

FOREWORD

Technical information, rather than the illustration of the finished Crittall product, is the subject of this book.

It is not claimed to be absolutely comprehensive nor, since improvements constantly occur, is it to be regarded as the final word.

But it shows details of all the more usual kinds of purpose-made windows and their fittings, more fully than has previously been done in printed form. In these pages all section details, unless stated to be otherwise, are shown actual size; and where fixing details are shown they reflect the more usual methods, but should not be regarded as excluding the practicability of others which for good reasons may be favoured by individual users.

Metal window technique though progressing on traditional lines is in no danger of stagnation, new methods and new requirements in the product itself, are a stimulus to development. It has been our aim to provide a useful guide and reference for those who wish to study current practice.

ARRANGEMENT OF CONTENTS

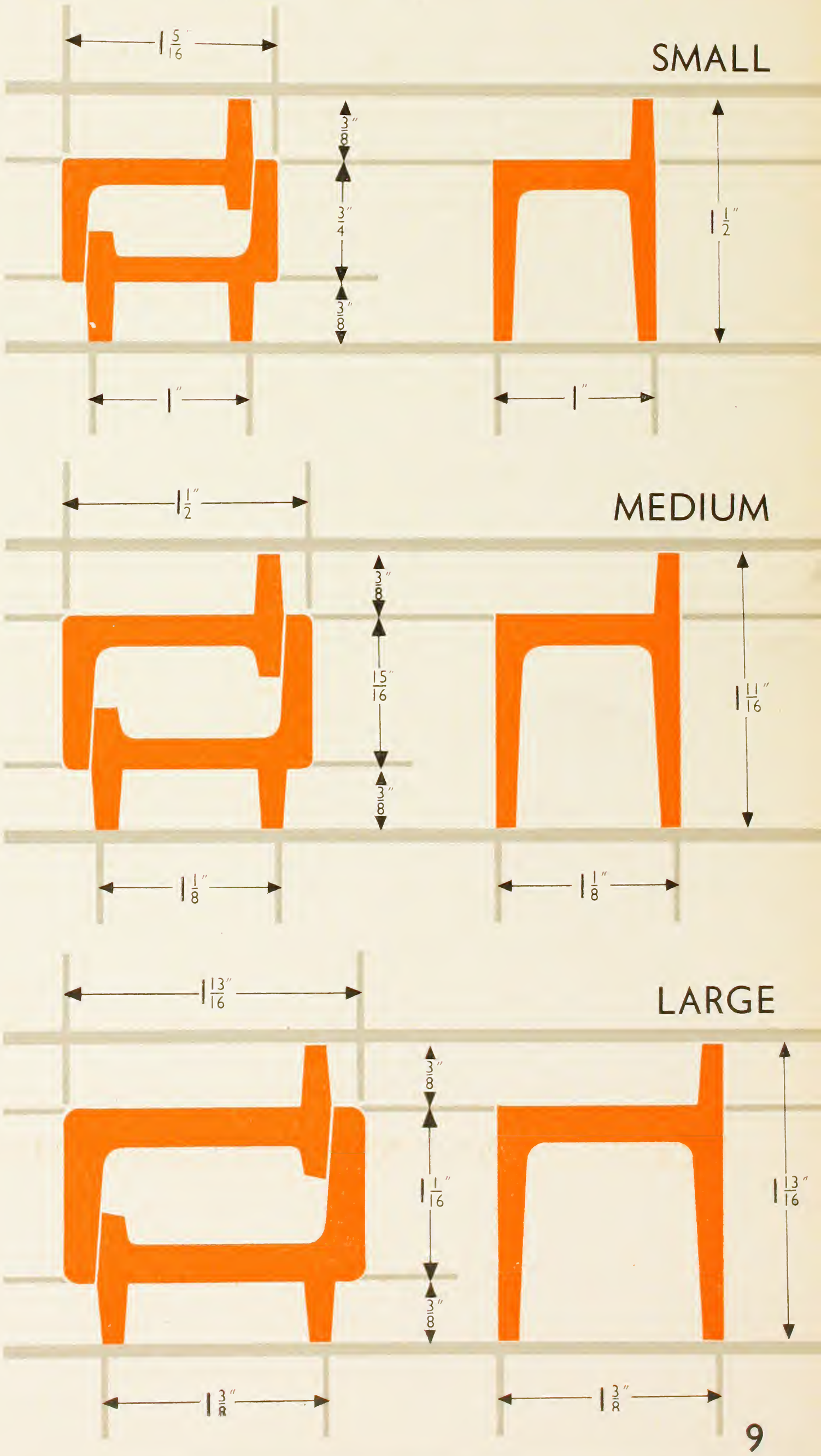
MATERIAL	All bars are of British rolled steel from British billets.
WEATHERING	All types of casements are double weathered at all points. All weathering is solid with the frames.
SIGHT LINES	The sight lines of both opening and fixed lights are the same, and the glass is in the same plane.
CONSTRUCTION	All corners of frames, and brackets for fittings are welded; and all glazing bars are rivetted in and "fenestra" jointed at the intersections.
HANGING	Hinges are of solid drawn bronze with phosphor bronze pins. In certain applications pressed steel hinges with bronze pins and washers are used. Ring centres are of drawn and pressed bronze.
FINISH	All windows are freed from scale and rust, and painted with anti-corrosive paint, by dipping before despatch.
FITTINGS	Are of bronze and are removable.
FIXING	All windows are supplied with necessary lugs, screws, etc., for fixing.

Specifications are subject to alteration without notice.

BRIEF SPECIFICATION

SECTIONS

The three ordinary weights of sections for opening windows and fixed lights are shown here actual size. The weight of section to be used is determined by the size of the window. A table of size limits is given on the following page. The glazing rebate of ALL sections is ⅜" deep. Windows can be prepared for glazing either from inside with wood beads, metal beads or putty, or from the outside with putty or metal beads. The range of bar sections (more fully illustrated on pages 12-13) includes profiles suitable for either. All fixed frame sections can be supplied with extended leg on the outside or the inside, according to the fixing detail.



LIMITS OR MAXIMUM SIZES

TYPE OF VENTILATOR	SMALL SECTION	MEDIUM SECTION	LARGE SECTION
SIDE HUNG open out or open in	H 5′ 0″ 14′ W 2′ 0″	H 6′ 6″ 17′ W 2′ 6″	H 8′ 6″ 22′ W 3′ 0″
VERTICALLY CENTRE HUNG	H 5′ 0″ 16′ W 3′ 0″	H 6′ 6″ 19½′ W 3′ 9″	H 8′ 6″ 25½′ W 4′ 9″
TOP HUNG OR HORIZONTALLY CENTRE HUNG	H 4′ 0″ 14′ W 4′ 0″	H 5′ 0″ 17′ W 5′ 0″	H 6′ 0″ 21′ W 6′ 0″
BOTTOM HUNG with or without hopper cheeks	H 4′ 0″ 14′ W 4′ 0″	H 5′ 0″ 17′ W 5′ 0″	H 6′ 0″ 21′ W 6′ 0″
FOLDING open out or open in	H 4′ 6″ W 4′ 0″	H 6′ 0″ W 4′ 6″	H 8′ 0″ W 5′ 0″
FOLDING WITH FIXED MEET- ING RAIL open out or open in	H 4′ 6″ W 4′ 0″	H 6′ 0″ W 5′ 0″	H 8′ 0″ W 6′ 0″
FOLDING DOORS open out or open in		H 7′ 6″ W 5′ 0″	H 8′ 0″ W 6′ 0″

HEIGHTS ARE GIVEN FIRST

figures in red are maximum perimeters

OF CRITTALL VENTILATORS

HEIGHTS ARE GIVEN FIRST

TYPE OF VENTILATORS	SMALL SECTION	MEDIUM SECTION	LARGE SECTION
SINGLE DOOR Open out or open in		H 7' 6" W 2' 6"	H 8' 0" W 3' 0"
FOLDING VERTICALLY CENTRE HUNG without fixed meeting rail	H 4' 6" W 5' 0"	H 6' 0" W 6' 0"	H 8' 0" W 7' 6"
FOLDING VERTICALLY CENTRE HUNG with fixed meeting rail	H 4' 6" W 6' 0"	H 6' 0" W 7' 6"	H 8' 0" W 9' 6"
BALANCE WINDOW	H 5' 6" W 2' 6"	H 7' 0" W 3' 6"	H 9' 0" W 4' 6"
BALANCE WINDOW with fixed meeting rail	H 6' 0" W 3' 6"	H 7' 0" W 4' 6"	H 9' 0" W 5' 6"
TWO TOP HUNG OR BOTTOM HUNG with or without fixed meeting rail	H 3' 6" W 6' 0"	H 4' 0" W 7' 6"	H 4' 6" W 9' 6"
SLIDING FOLDING Total width limit 20' 0" not more than 4 leaves to slide in one direction		H 8' 0" W 3' 0" each leaf	

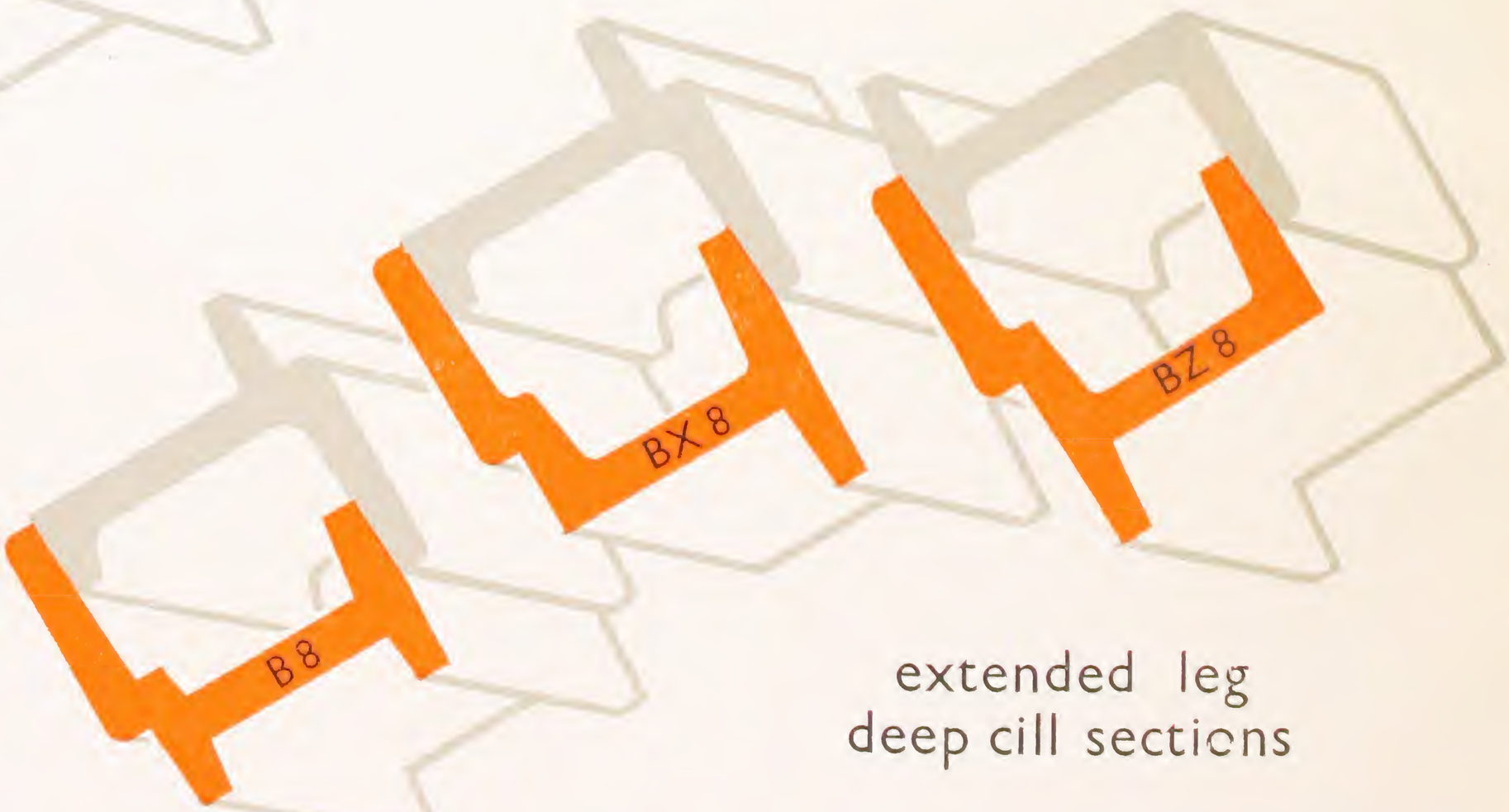
CRITTALL MEDIUM

equal leg
outer frame

NOTE: Sections BX8 and BZ8 are not available in small range. Section B 10 is not available in small or large ranges.

extended leg
outer frames

minimum coupling bar



equal leg deep cill section

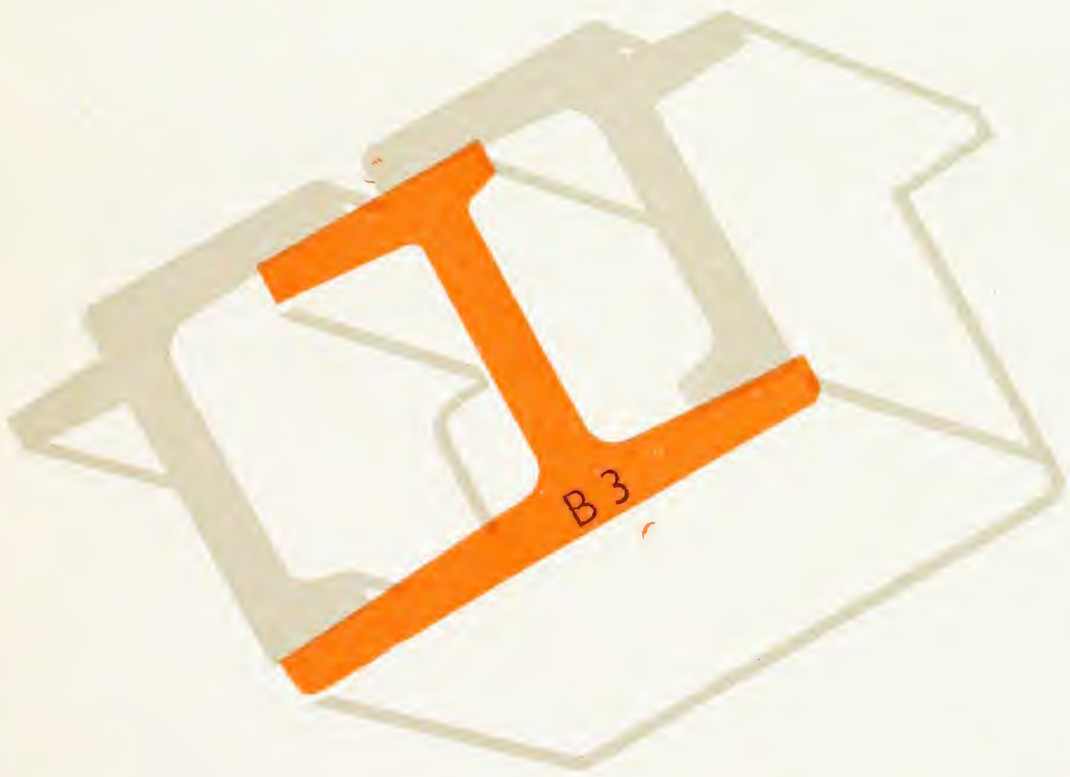
extended leg
deep cill sections

SECTIONS

equal leg fixed light

opening frames

extended leg fixed light



fixed meeting rail

reversed fixed meeting rail

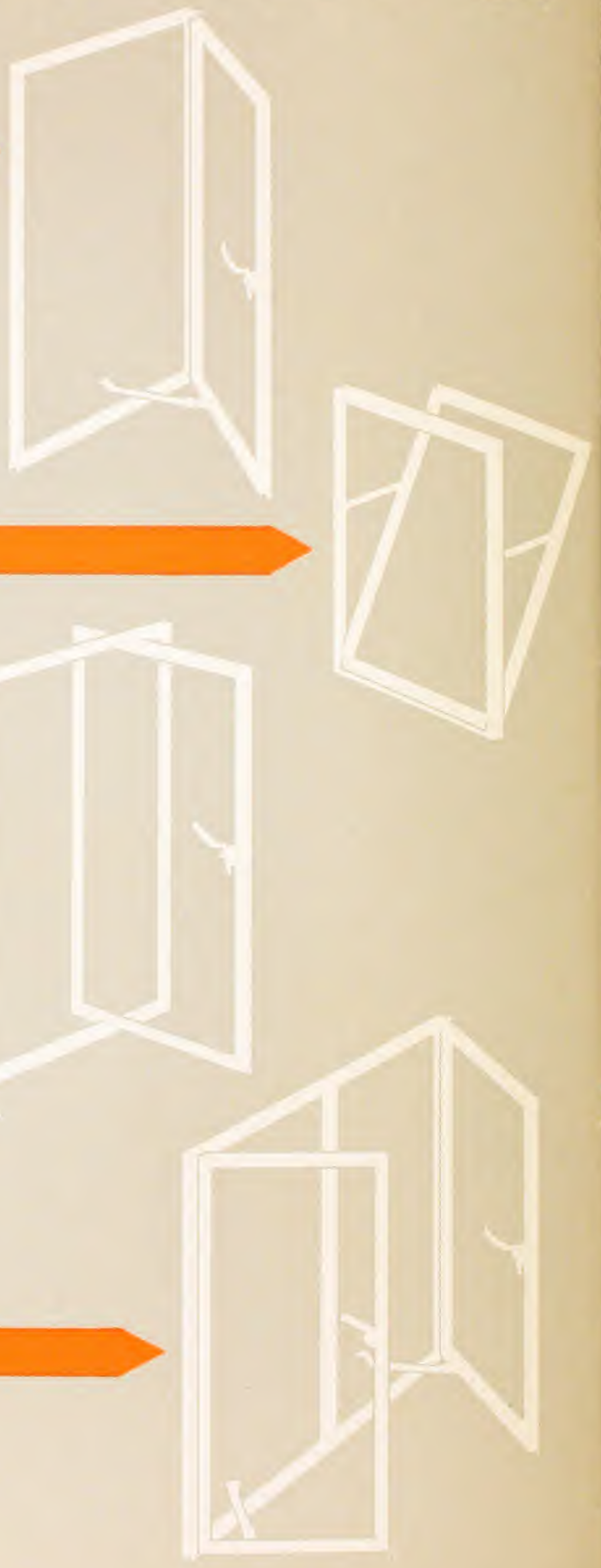
ORDINARY TYPES OF

SIDE HUNG OPEN OUT
(S. H. °/o) page 16

BOTTOM HUNG OPEN
IN (B. H.°/in) pages 21-25

VERTICALLY CENTRE
HUNG (V.C.H.) page 18

FOLDING WITH
FIXED MEETING RAIL
page 27



CASEMENT VENTILATORS

TOP HUNG OPEN OUT
(T. H. °/o) Page 20

SIDE HUNG OPEN IN
(S. H. °/in) page 17

HORIZONTALLY CENTRE
HUNG (H. C. H.) page 19

FOLDING
page 26

SIDE HUNG OPEN OUT

No. 280
Weather Bar

Side hung ventilators are hung on bronze butts and are usually fitted with handle and peg stay. Several alternative types of casement handles and stays are available. The weather bar at head is sometimes desirable, according to the position of the window in the opening and the situation of the building. Projecting butts which allow the window to open right back against the outside face of the wall can be fitted if required.

OUTSIDE

SIDE HUNG OPEN IN

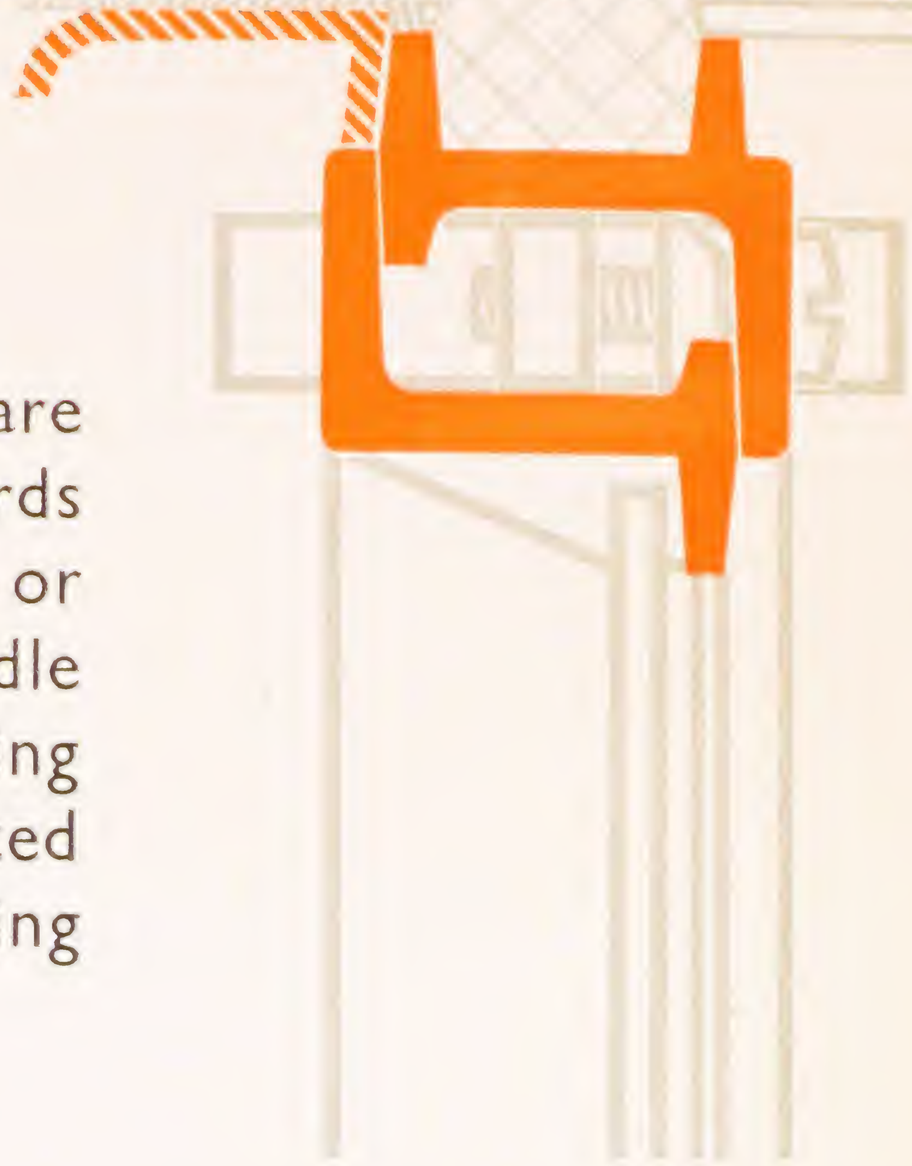
INSIDE

Inward opening windows are inherently less resistant to severe weather conditions than outward opening, and their use is infrequent in this country. There are, however, positions where no external projection is permitted and in such cases inward opening casements must be used. All side hung inward opening casements have the deep cill section and weather bar at cill. Fittings are normally handle and cabin hook and eye.

No. 106
Weather Bar

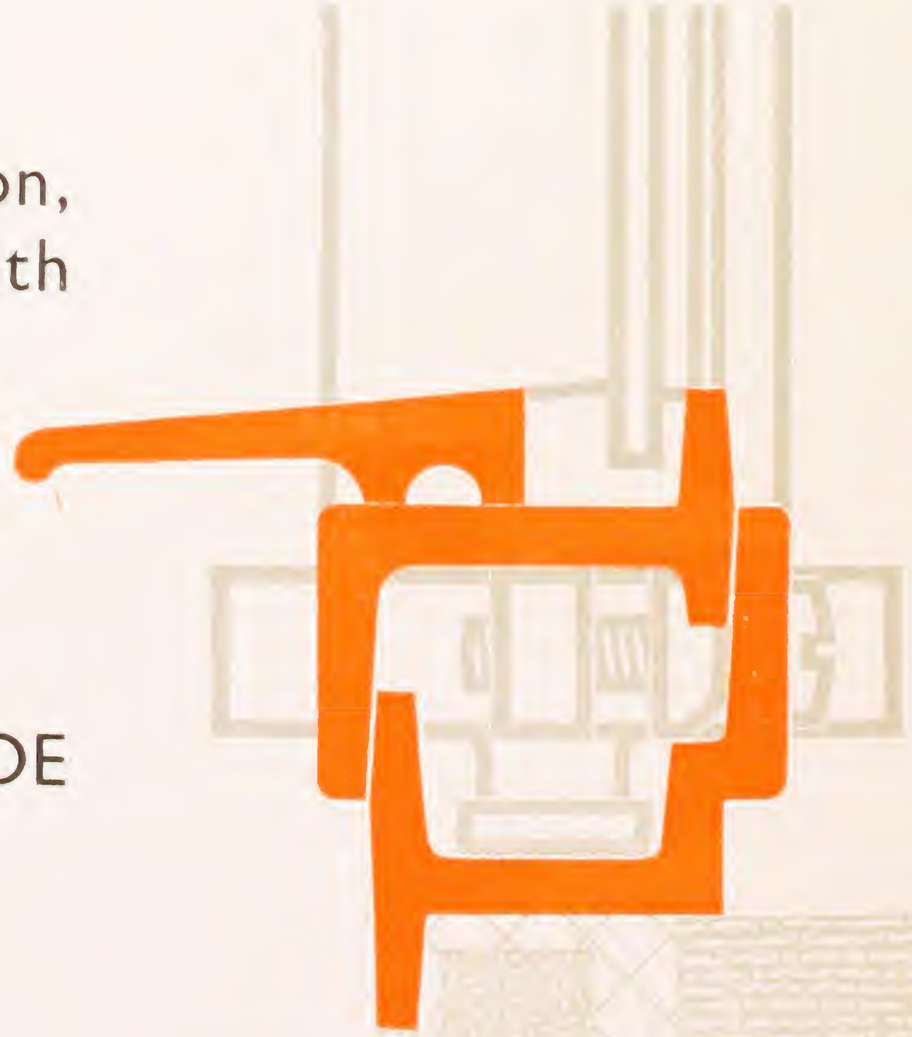
No. 131
Weather Bar

VERTICALLY CENTRE HUNG



Vertically centre hung casements are hung two thirds to open outwards and one third to open inwards, or centrally, and are fitted with handle and ring friction centre—no stay being needed. They can if required be fitted with free ring centre and sliding or peg stay.

They always have deep cill section, and weather bar and weep holes with covers at cill.



OUTSIDE

HORIZONTALLY CENTRE HUNG

Horizontally centre hung ventilators are usually fixed in positions above the eye line. They can be hung on either friction or ordinary ring centres. When within reach they can be operated by a peg stay or by a spring catch. When friction centres are used no stay is needed. They can be fitted when out of reach with spring catch and pulley and cords, or when friction centres are used with spring catch for long arm. Alternatively they can be operated by Arens control or screw gearing.

OUTSIDE

TOP HUNG OPEN OUT

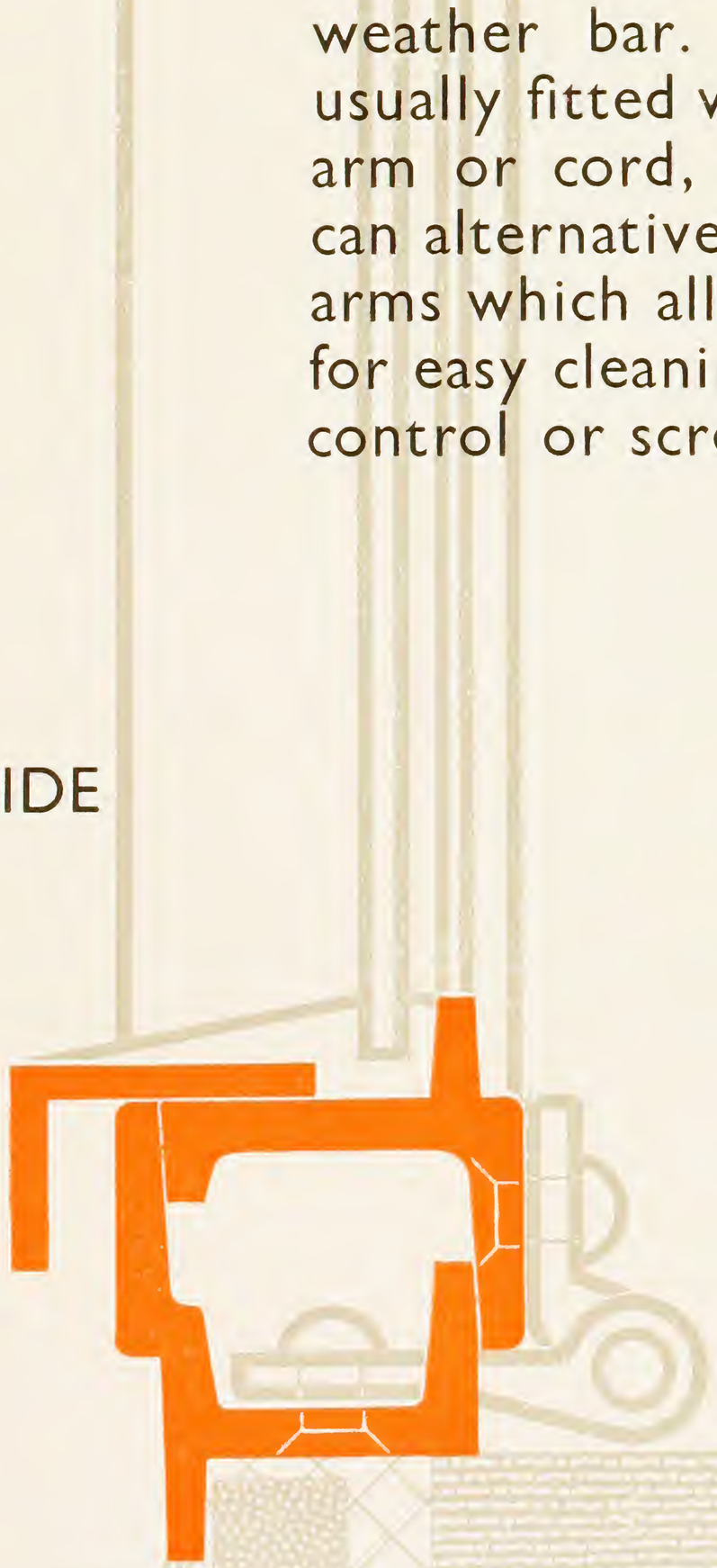
OUTSIDE

Top hung casements are normally hung on bronze butts but as an alternative can be constructed as horizontally centre hung casements with the pivots very near the head. This method gives slightly better weathering in exposed positions. Top hung casements are usually provided with a peg stay when within reach; alternatively they can be fitted with non projecting sliding opener, rack opener, Arens control or screw gearing.

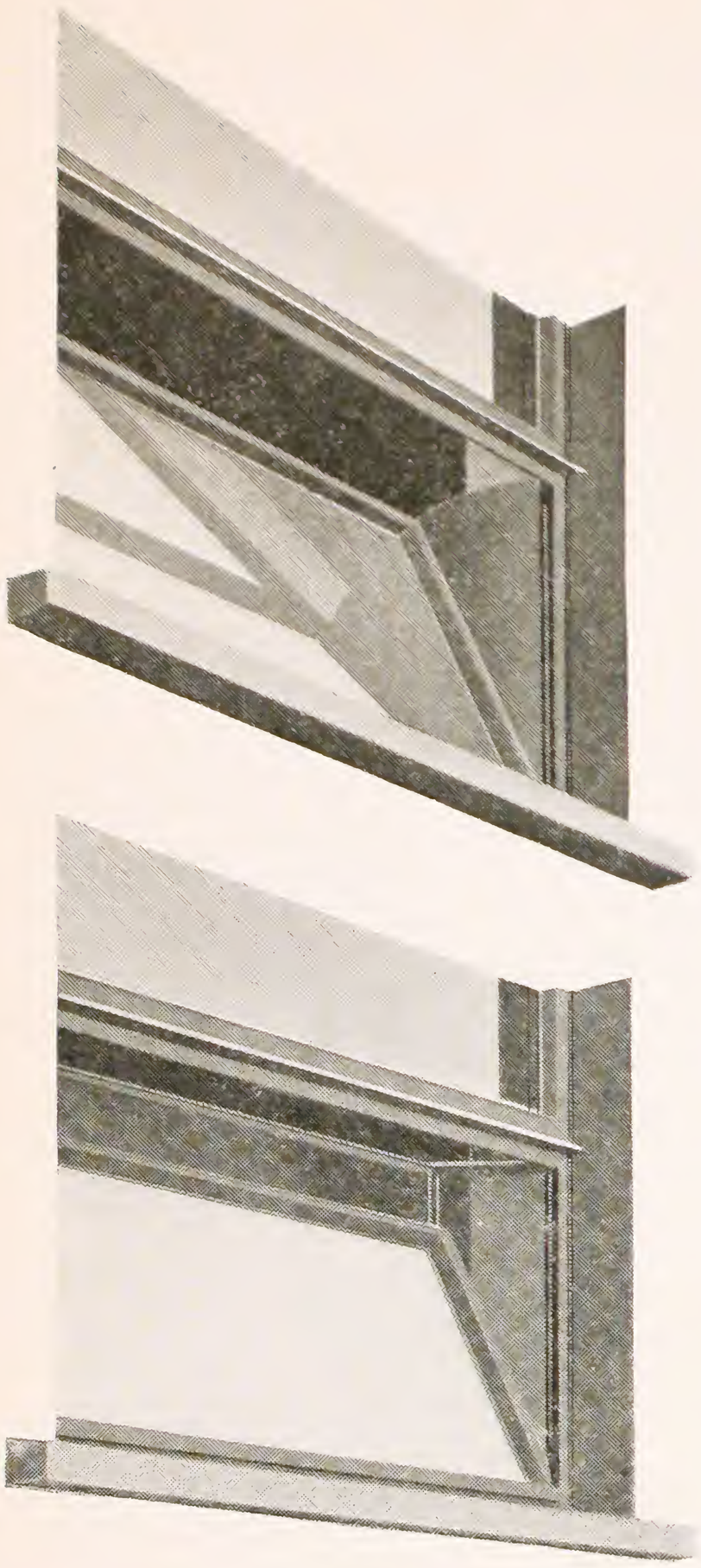
BOTTOM HUNG OPEN IN

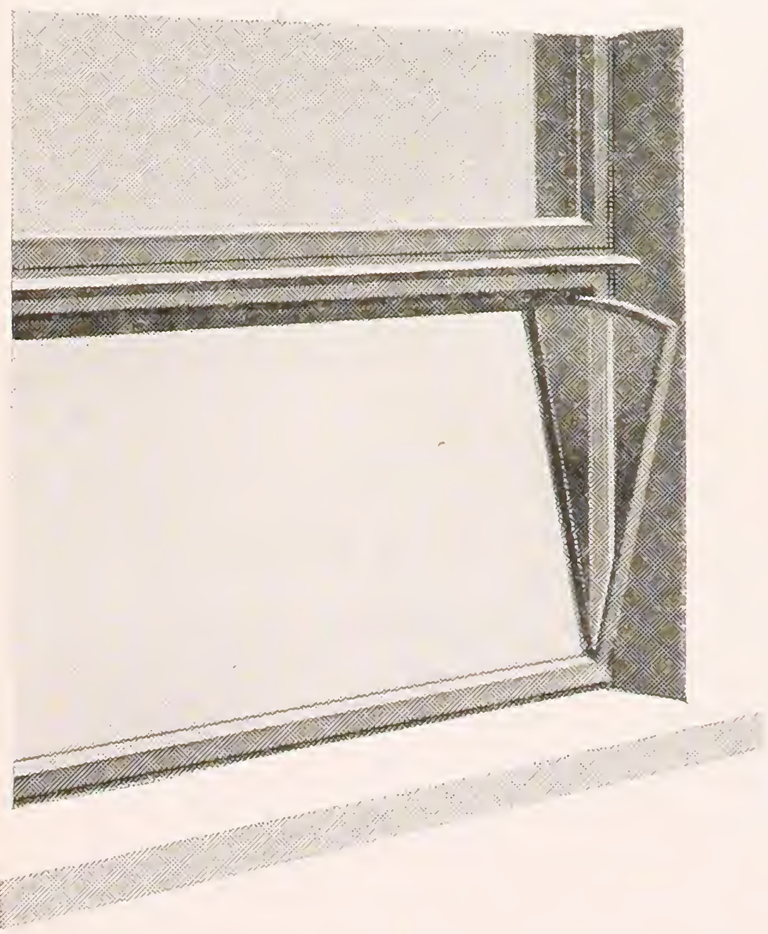
Bottom hung casements without side cheeks are usually hung on ring centres; this is the best method for efficiency and weathertightness, but if necessary they can be hung on bronze butts, in which case they are fitted with a special weather bar. Bottom hung casements are usually fitted with a spring catch for hand, long arm or cord, and concealed side-arms. They can alternatively be fitted with drop down side arms which allow the vent to open right down for easy cleaning, or with rack opener, Arens control or screw gearing.

OUTSIDE



HOPPER





The illustrations show the three more usual kinds of hopper side cheeks. Full size details of these, and of some other kinds are given overleaf.

The top illustration shows the simple side cheek of bent steel plate, attached to the fixed frame of the window on the inside. Side cheeks of this shape, made of light steel angle-bars to take glass, are often used when the window is fixed near the inside face of the wall.

In positions where the avoidance of down-draught is particularly important glazed hopper side cheeks with a glazed baffle are used, as shown in the central illustration.

Probably the neatest form of hopper side cheek is that which is attached not to the fixed frame but to the opening frame of the ventilator, thus projecting inwards only when actually in use as shown in the bottom illustration.

The table on the following page shows the projection given to side cheeks unless other instructions are received. The projections are taken from the inside face of the window.

VENTILATORS

For	ventilators	1′	0″	high	5¼″
,,	,,	1′	6″	,,	8¼″
,,	,,	2′	0″	,,	9¼″
,,	,,	2′	6″	,,	10¼″
,,	,,	3′	0″	,,	11¼″
,,	,,	3′	6″	,,	12⅛″
,,	,,	4′	0″	,,	13″

OUTSIDE

When bottom hung ventilators are to be fitted with non-removable side cheeks no butts or centres are needed. By reversing the cill bars of both fixed and opening frames from their usual relation to the rest of the window, the flange of the fixed frame at cill becomes a fulcrum on which the opening frame is pivoted. This method is called "reverse cill" construction.

HOPPER

No. 510

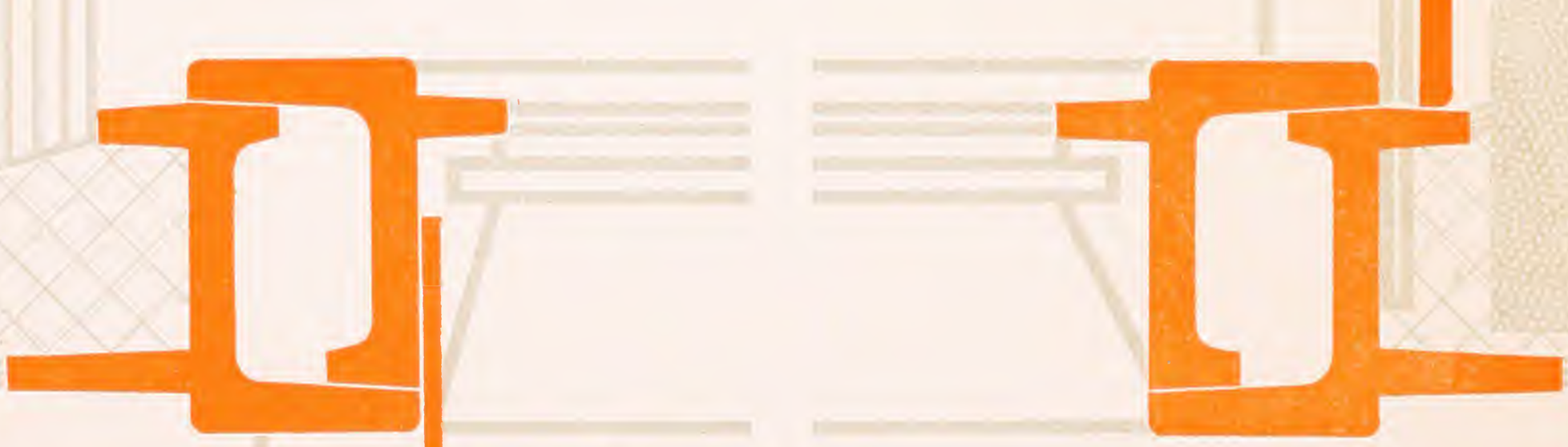
1

(1) Plate hopper side cheek used in conjunction with flush openings with internal linings. The cheeks are removable to facilitate plastering.

(2) Plate side cheeks fitted to the opening frame of the casement to avoid constant internal projection.

(3) Hopper side cheeks prepared for glazing with flat bar removable to allow the ventilator to open right down for cleaning and escape purposes. The flat bar is provided with a knob and slotted holes.

No. 749



OUTSIDE

2

3

VENTILATORS

5

4

(4 & 5) Alternative constructions of hopper side cheeks prepared for glazing, for use where the casements are to be fixed to wood frames.

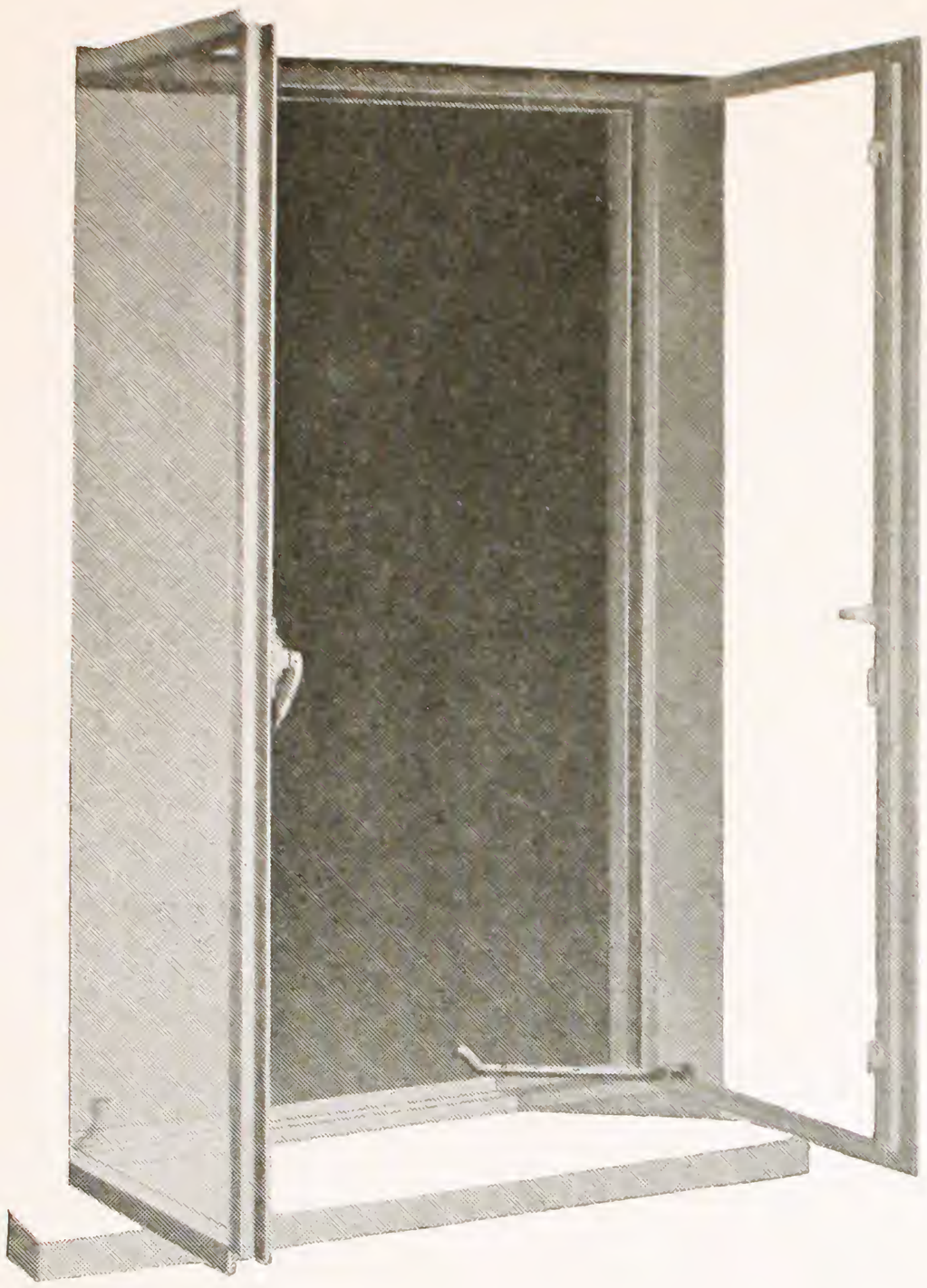
(6) The glazed equivalent of detail No. 2.

(7) The simple method of forming a hopper ventilator by fitting a removable angle in the reveal.

7

6

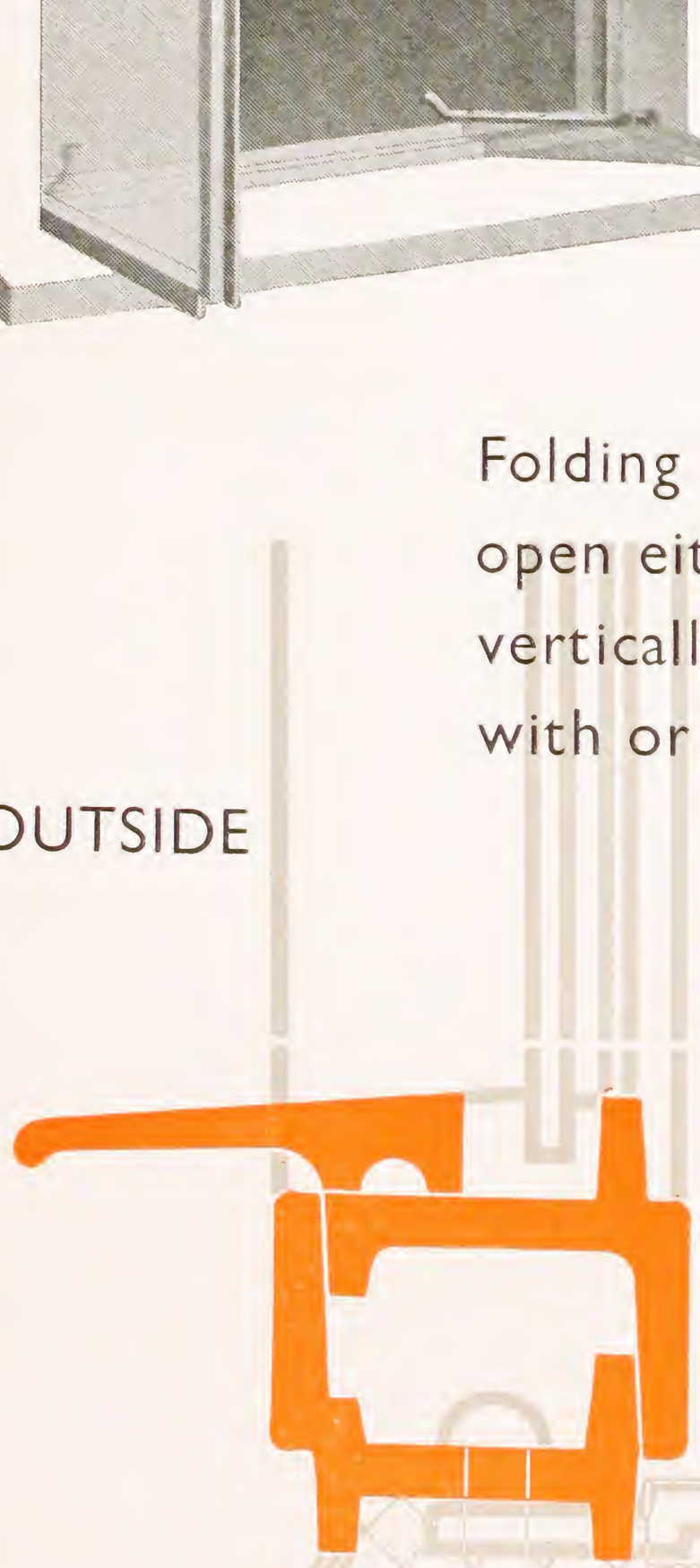
FOLDING

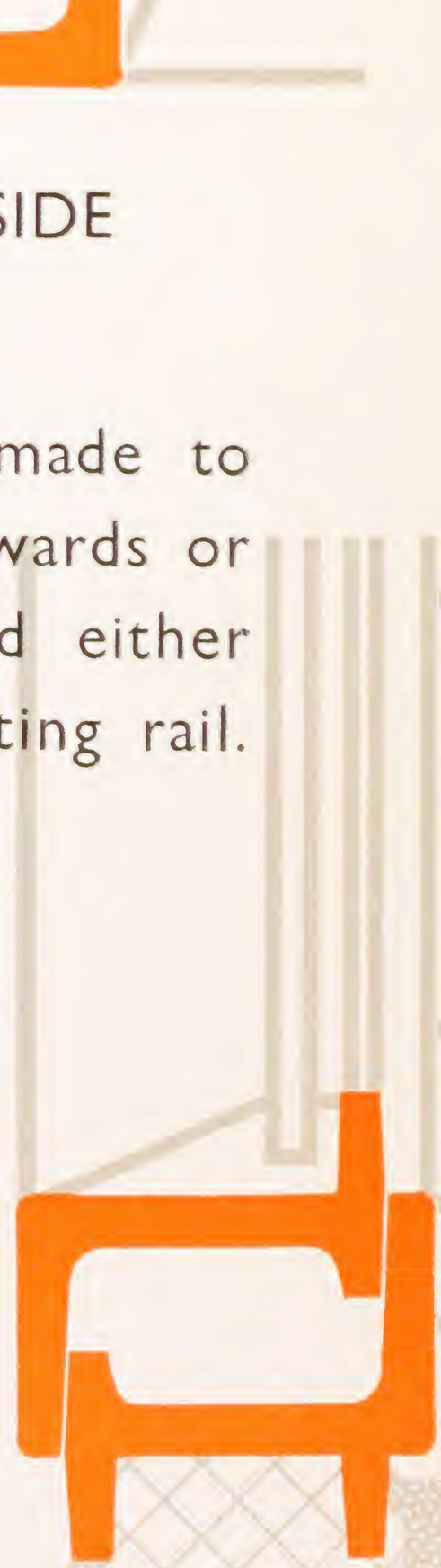


OUTSIDE

Folding casements can be made to open either inwards or outwards or vertically centre hung, and either with or without a fixed meeting rail.

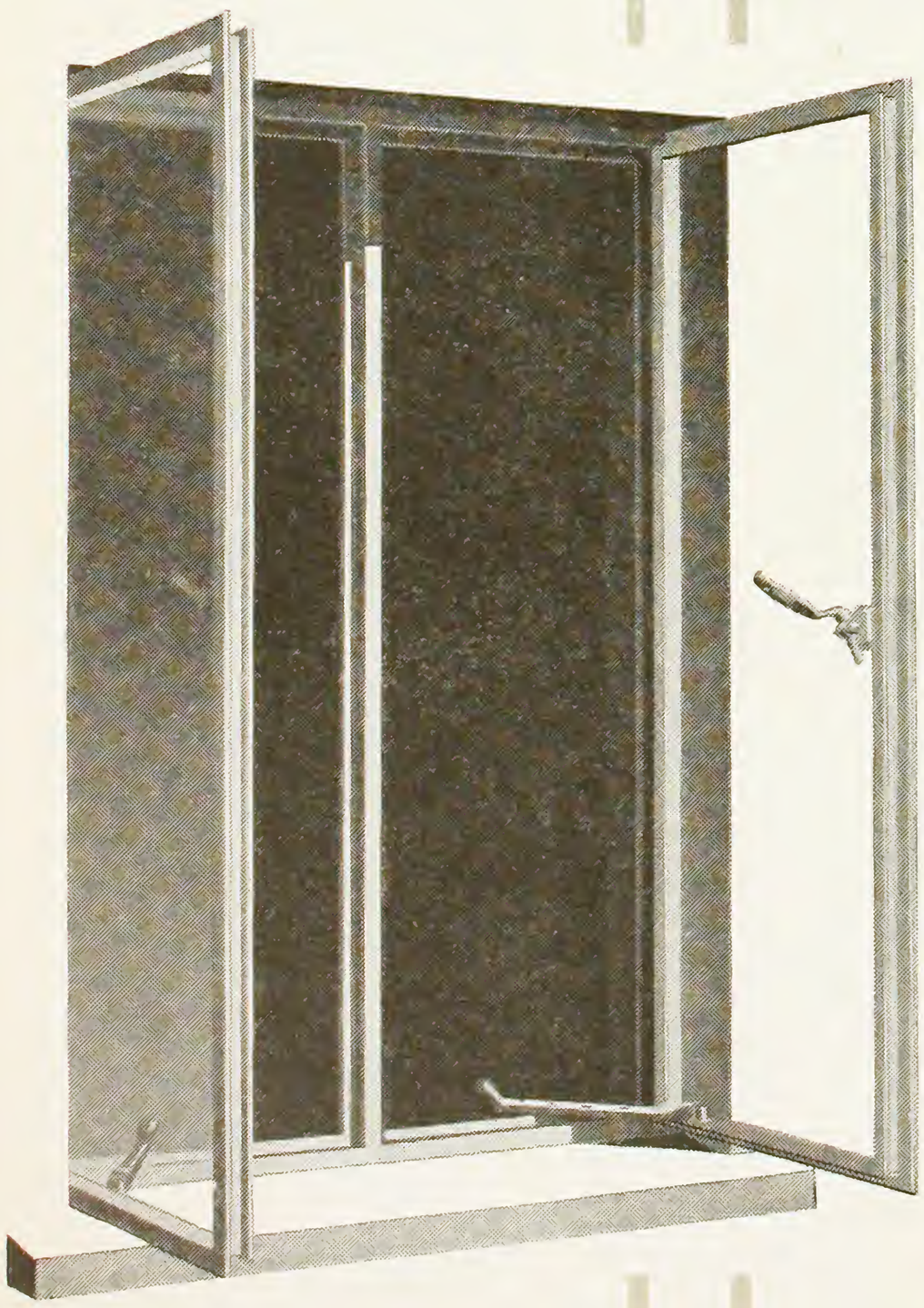
OUTSIDE





CASEMENTS

FIXED MEETING RAIL



The fixed meeting rail is recommended on high buildings for the sake of safety when cleaning the window. Folding casements without fixed meeting rail are fitted with an espagniolette bolt; in other respects folding casements are provided with the same fittings as ordinary side hung windows.

No. A.I.
Small
Section

No. B.I.
Medium
Section

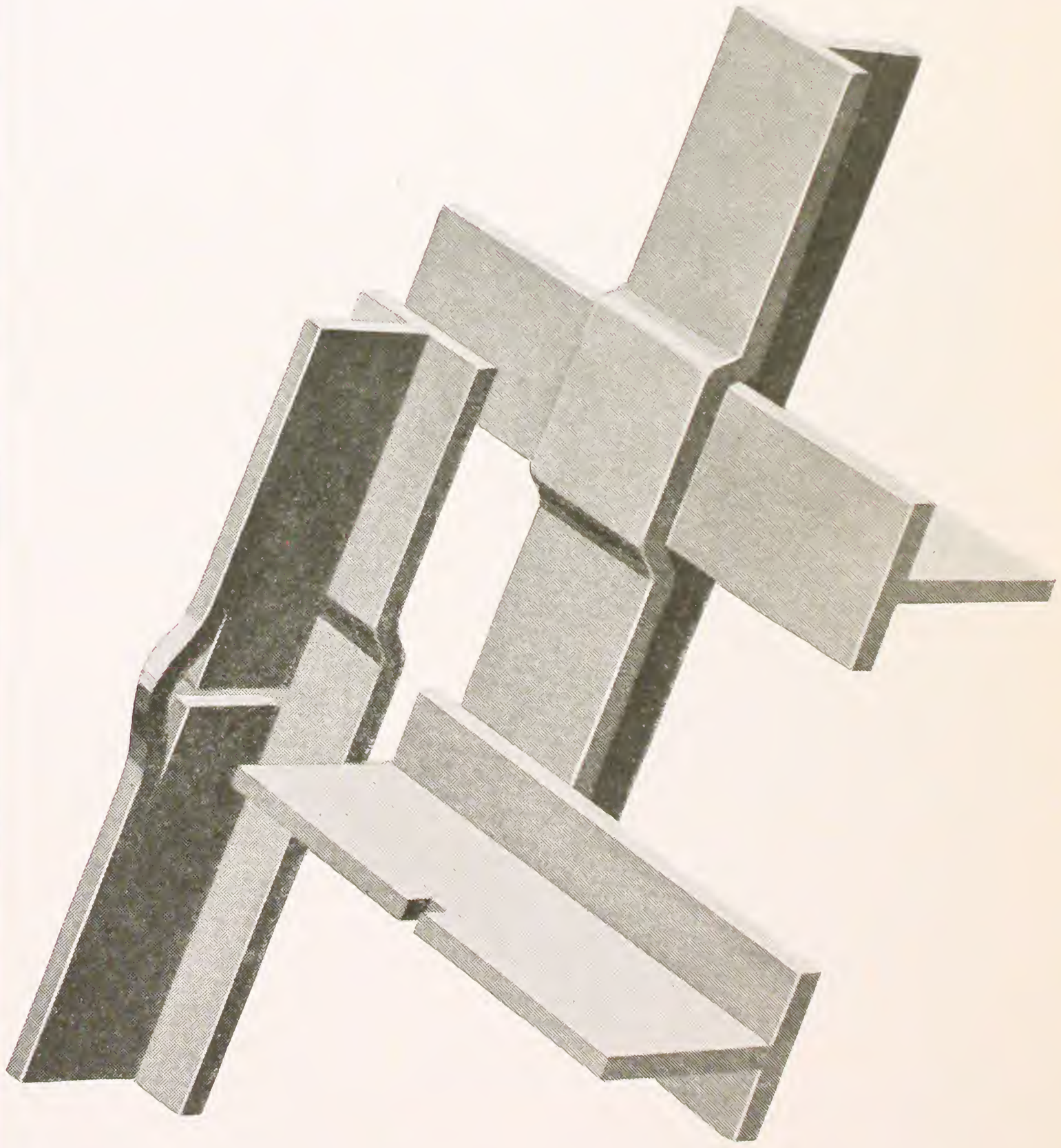
No. C.I.
Large
Section

No. 737.
Medium
or Large
Sections

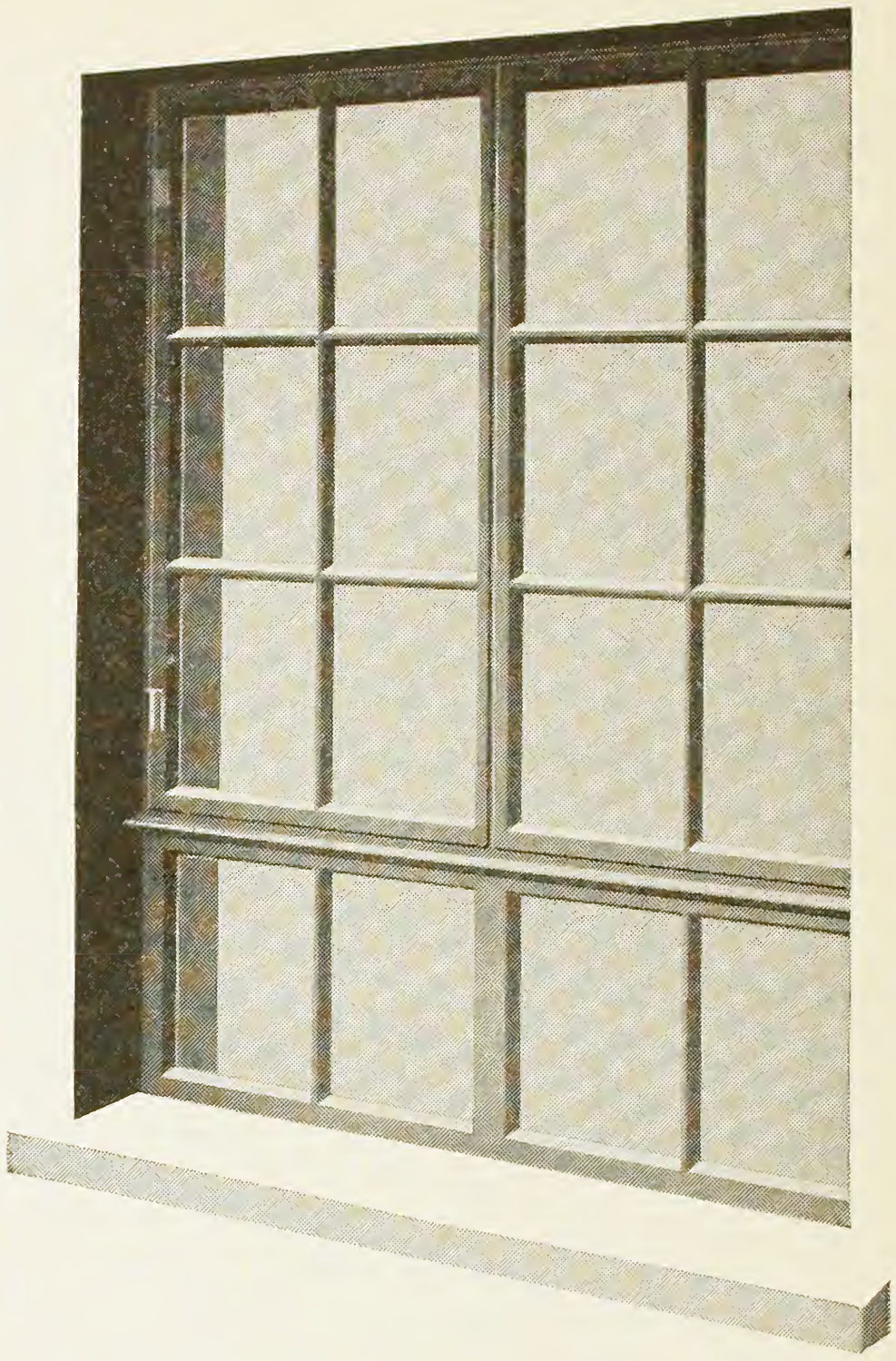
No. 717.
Large
Section

GLAZING

Generally speaking the weight of the glazing bars in a window varies according to the size of window section used. Tee bars A1, B1 and C1, of which the sight widths are the same, are normally used with small, medium and large section respectively. Larger and smaller glazing bars for windows of all Crittall sections are available if specially required. The fenestra joint illustrated below is always used at the intersections of glazing bars.



BARS



Where necessary individual glazing bars can be substituted by special dummy "lining" members which give the same sight widths as the effective bars with which they are continuous. The example shown here is one of many such special "lining" members.

With internal glazing, beads of hardwood or metal result in a neat appearance and finish. For external glazing, metal beads only are available.

STEEL BEAD APPLIED TO MEDIUM SECTION

STEEL BEAD APPLIED TO SMALL SECTION

STEEL BEAD APPLIED TO LARGE SECTION

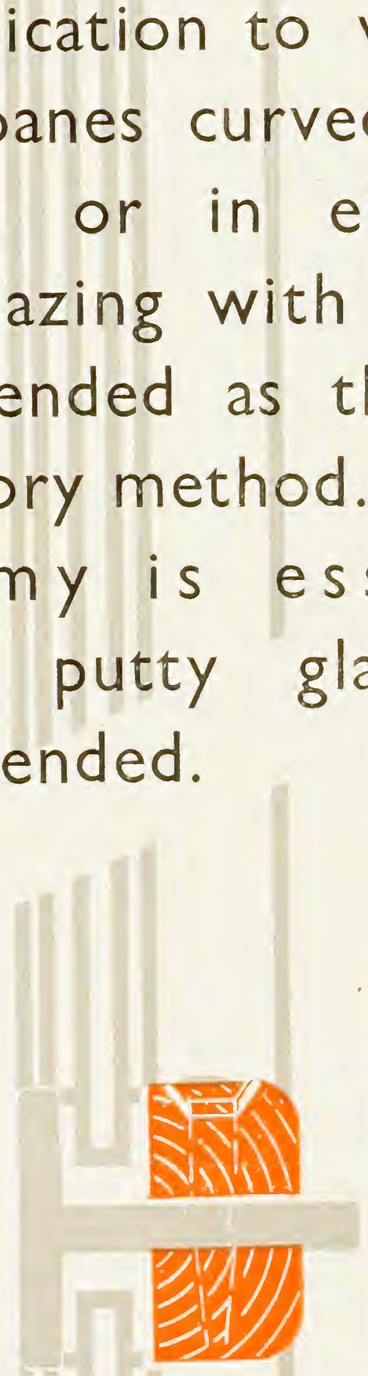
GLAZING BEADS

WOOD: LARGE

WOOD: MEDIUM

WOOD: SMALL

Wooden beads are unsuitable for application to windows having panes curved either on plan or in elevation. Inside glazing with beads is recommended as the most satisfactory method. Where economy is essential outside putty glazing is recommended.



CONDENSATION GUTTERS

No. 515

No. 514

No. 908

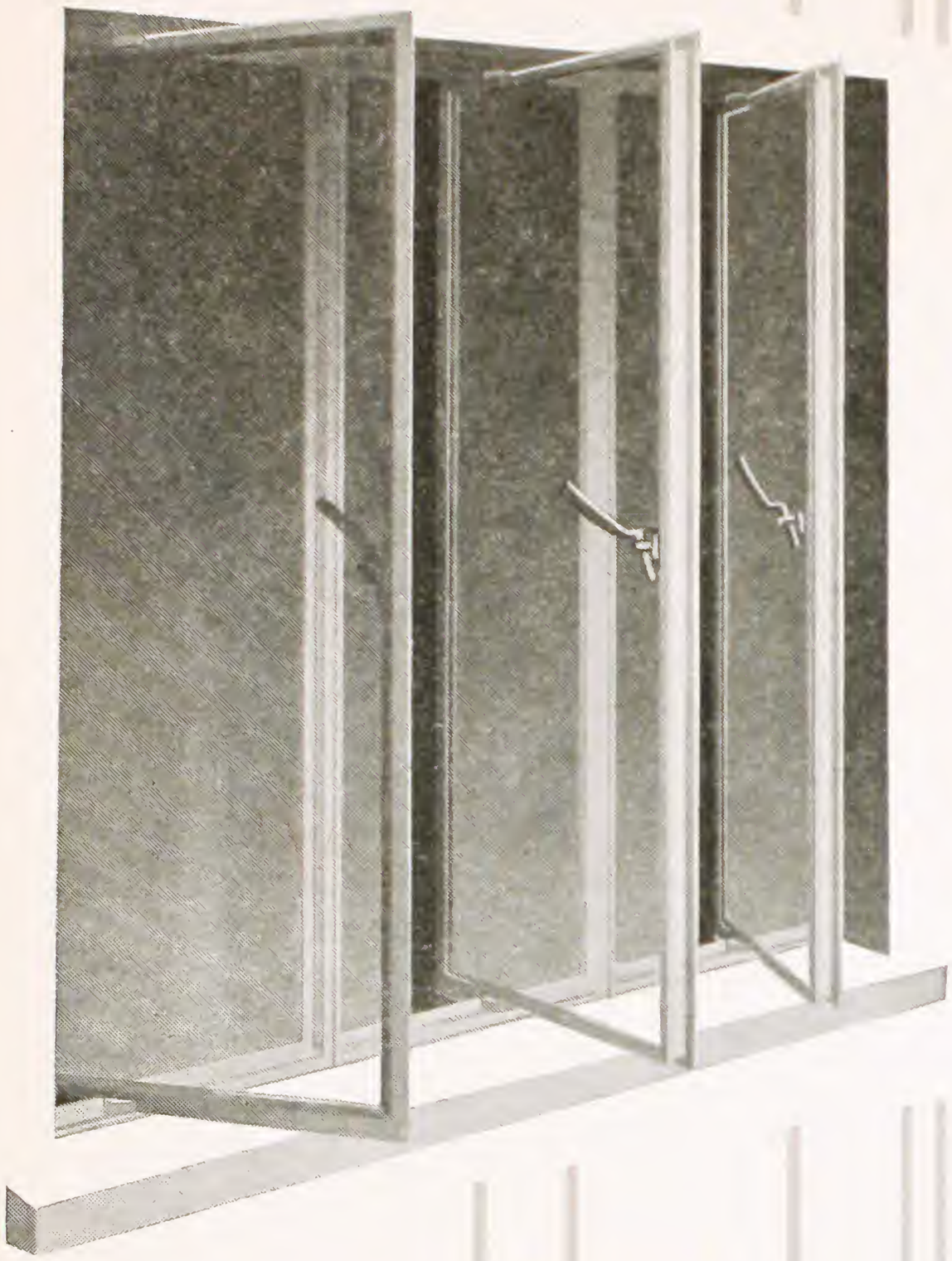
Where condensation on the glass is expected to be considerable condensation gutters are sometimes specified. These are of different types according to the construction of the window and are of bronze. It is only in buildings of a special nature, where normal ventilating methods for some reason cannot be employed, that condensation need occur to more than a negligible extent.

No. 1004

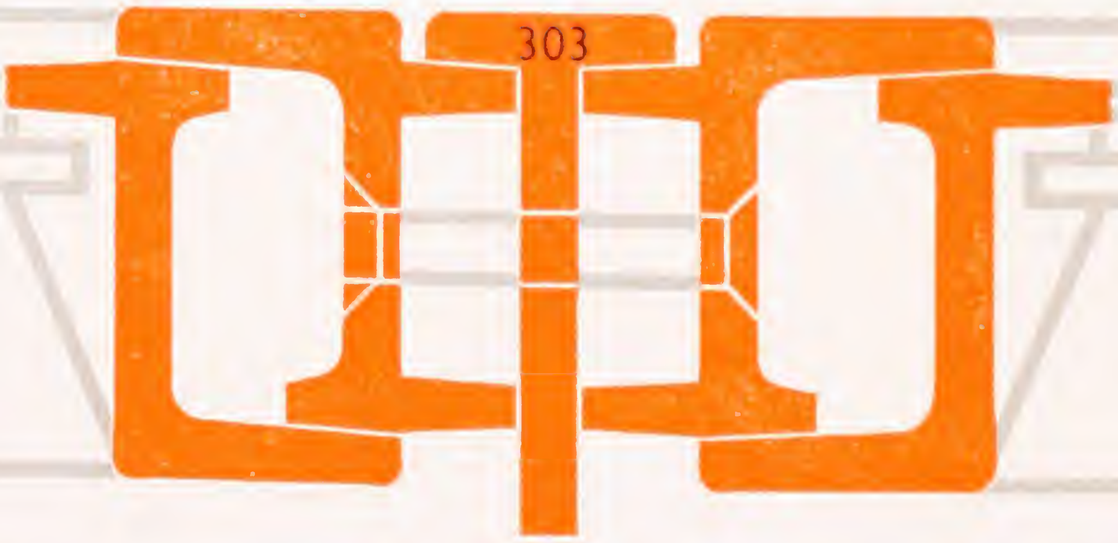
COMPOSITE WINDOWS

including T mullions and transomes, larger, and partition mullions, unit composites, various coupling details, and multi-storey windows.

T MULLIONS

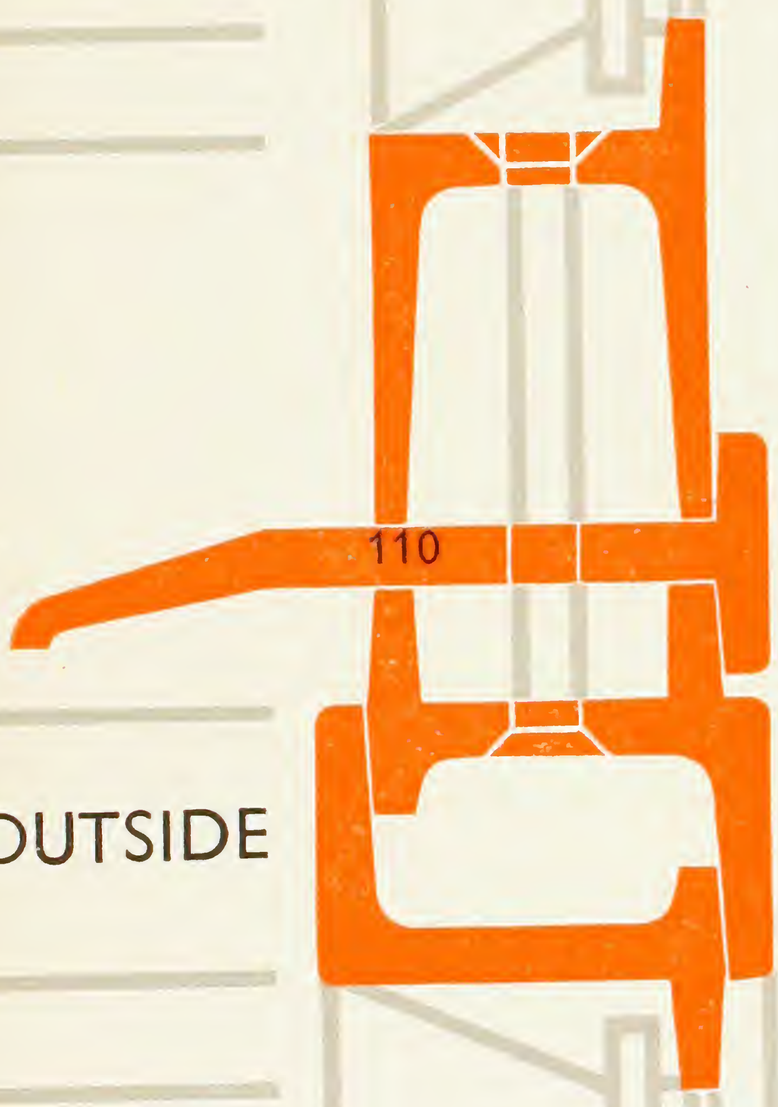


Any number of casements of any type may be coupled together to form composite windows, by the use of steel T coupling bars. This method offers much less obstruction to light than either wood or stone mullions and transomes, and provides a metal check or rebate to break the joint. The coupling is effected by means of rustproofed bolts concealed inside the sections: this allows windows of any size to be shipped in small units and erected on the site.



OUTSIDE

AND TRANSOMES



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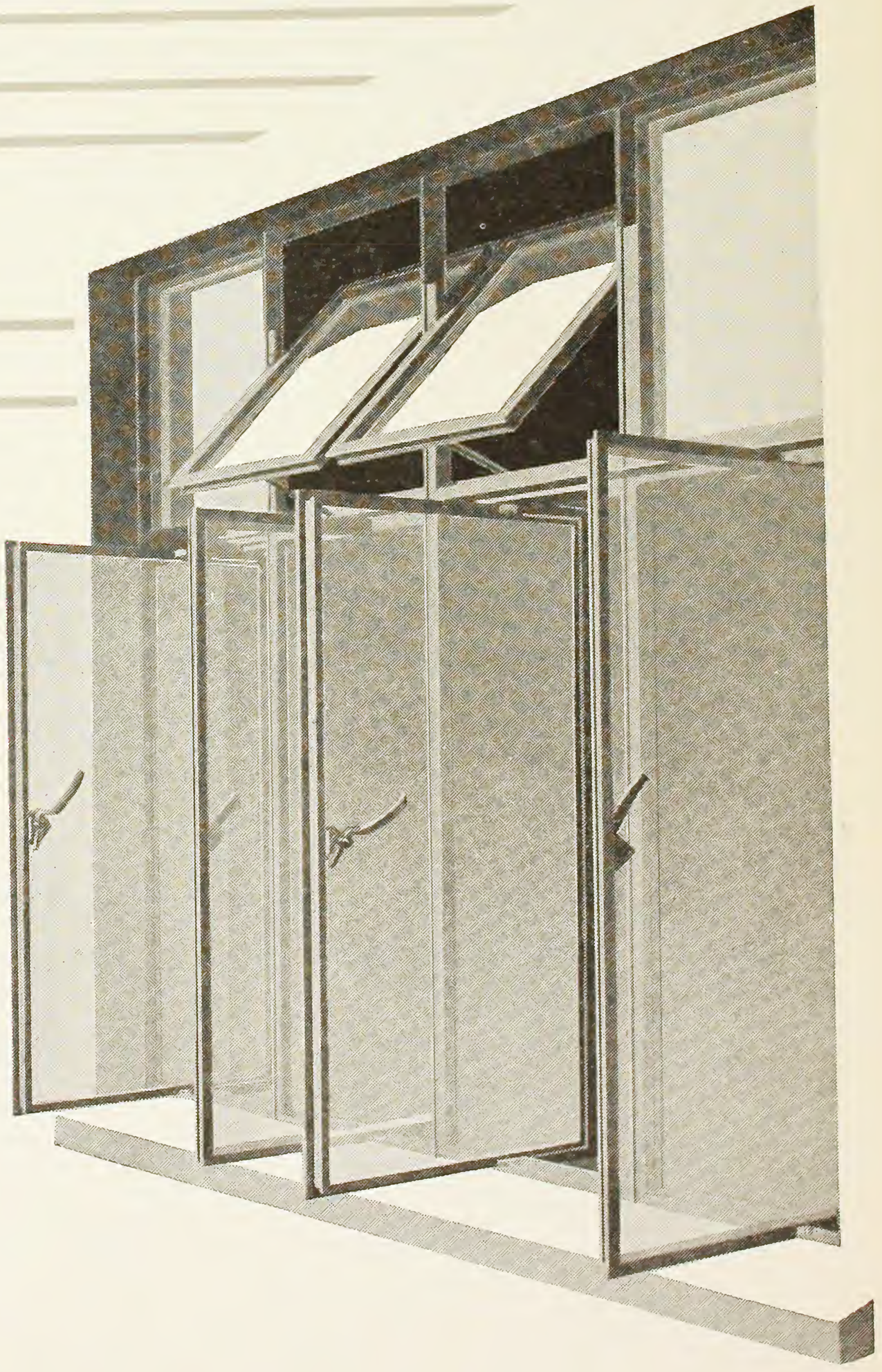
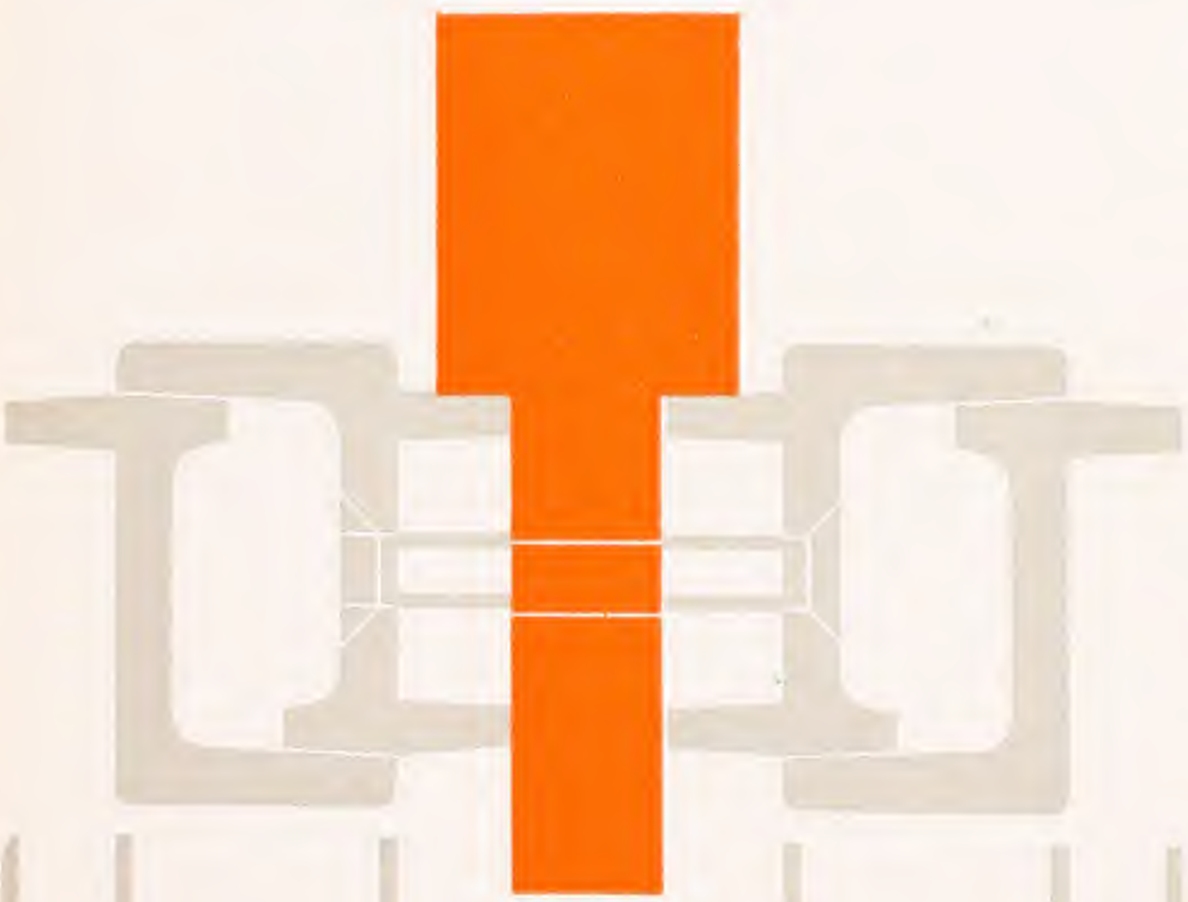


In cases where the mullions and transomes intersect, both are continuous, the mullion being threaded through the transome. This greatly increases the rigidity of the complete window. The joint between the casement and the coupling bar must be pointed with mastic cement after fixing.

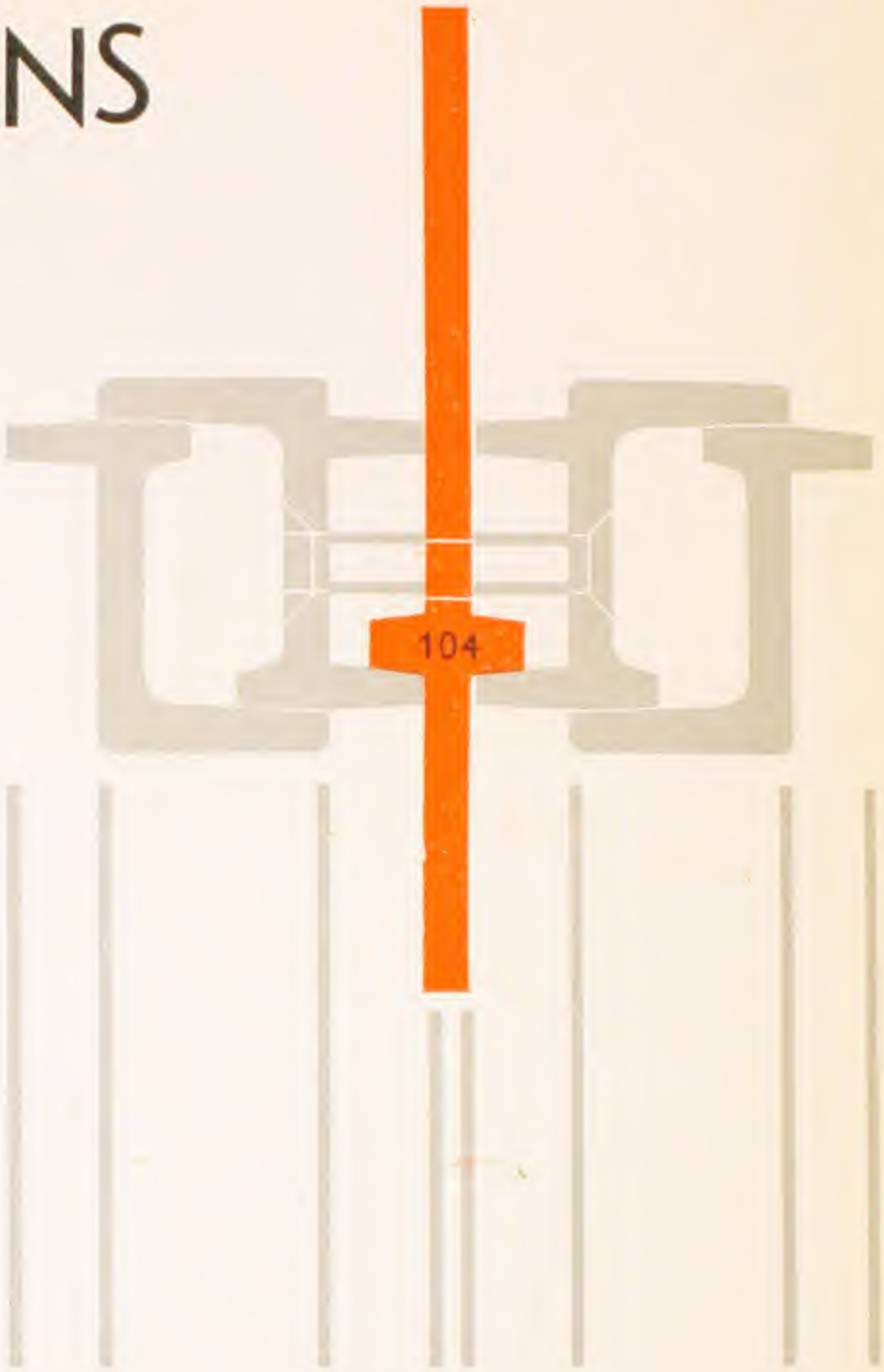
LARGER MULLIONS

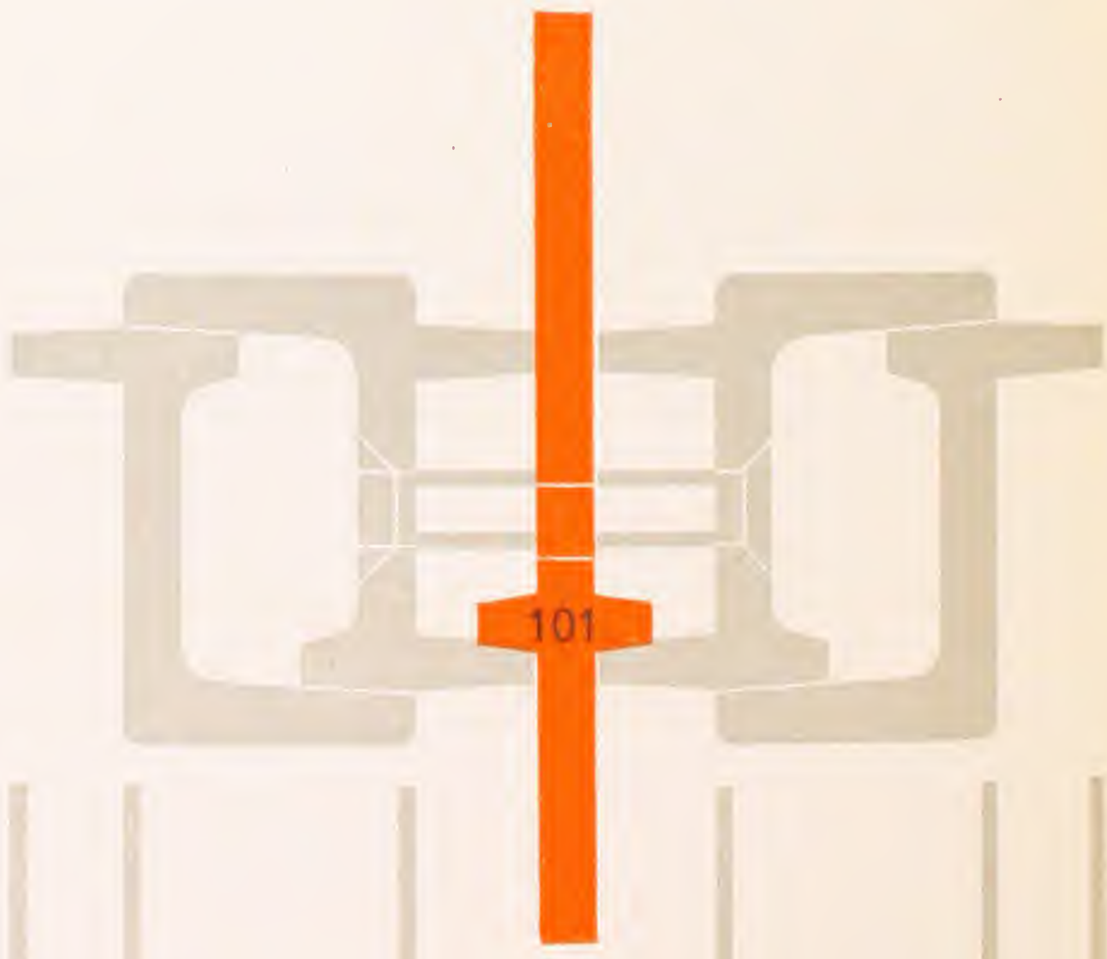
Very large composite windows require heavier mullions to give them adequate rigidity and resistance to wind pressure. They extend the full height of the window, and transomes are not threaded through them. Where possible these mullions should run into the masonry at head and cill.



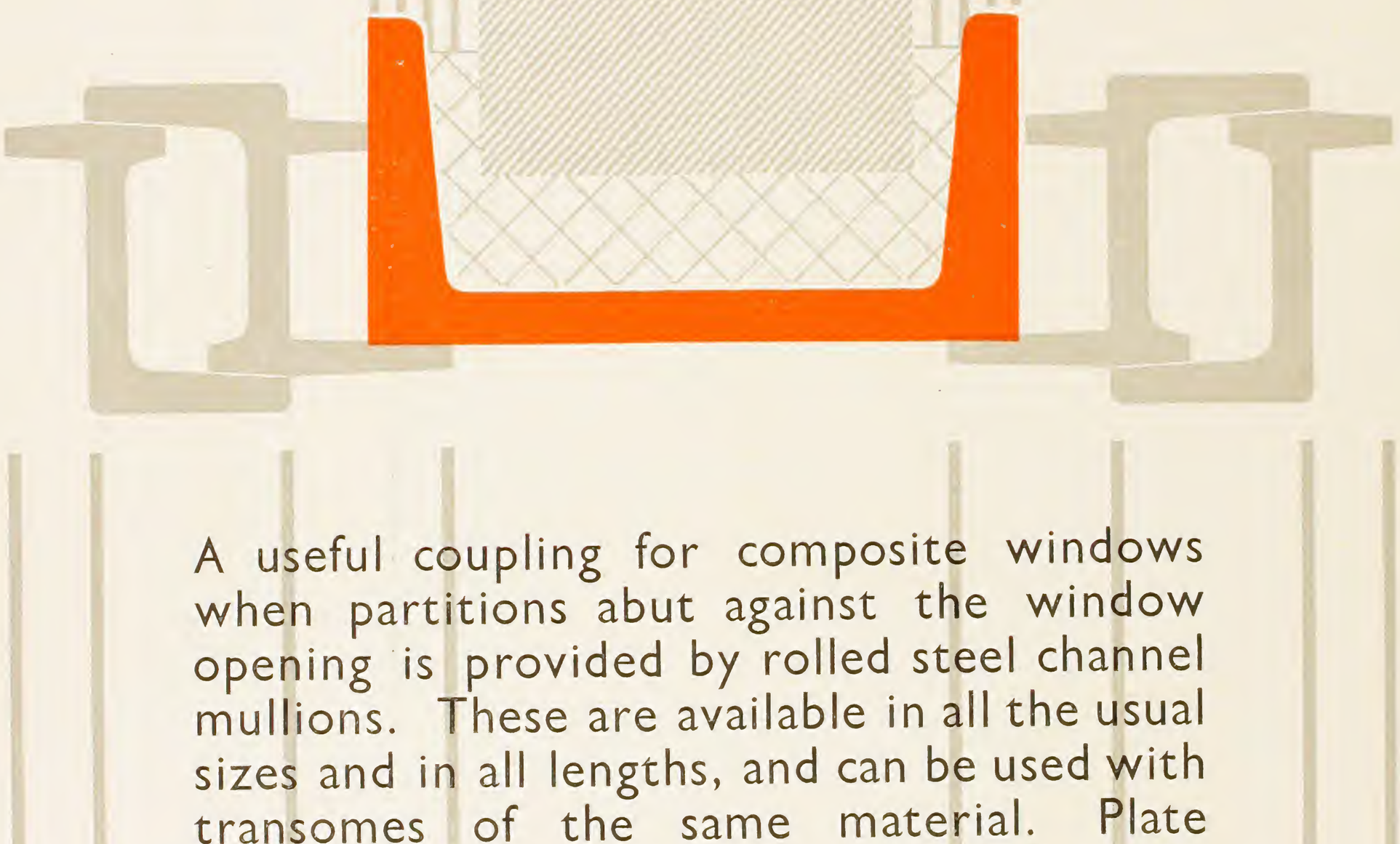
also supplied with
$4\frac{3}{4}$" stem

OUTSIDE

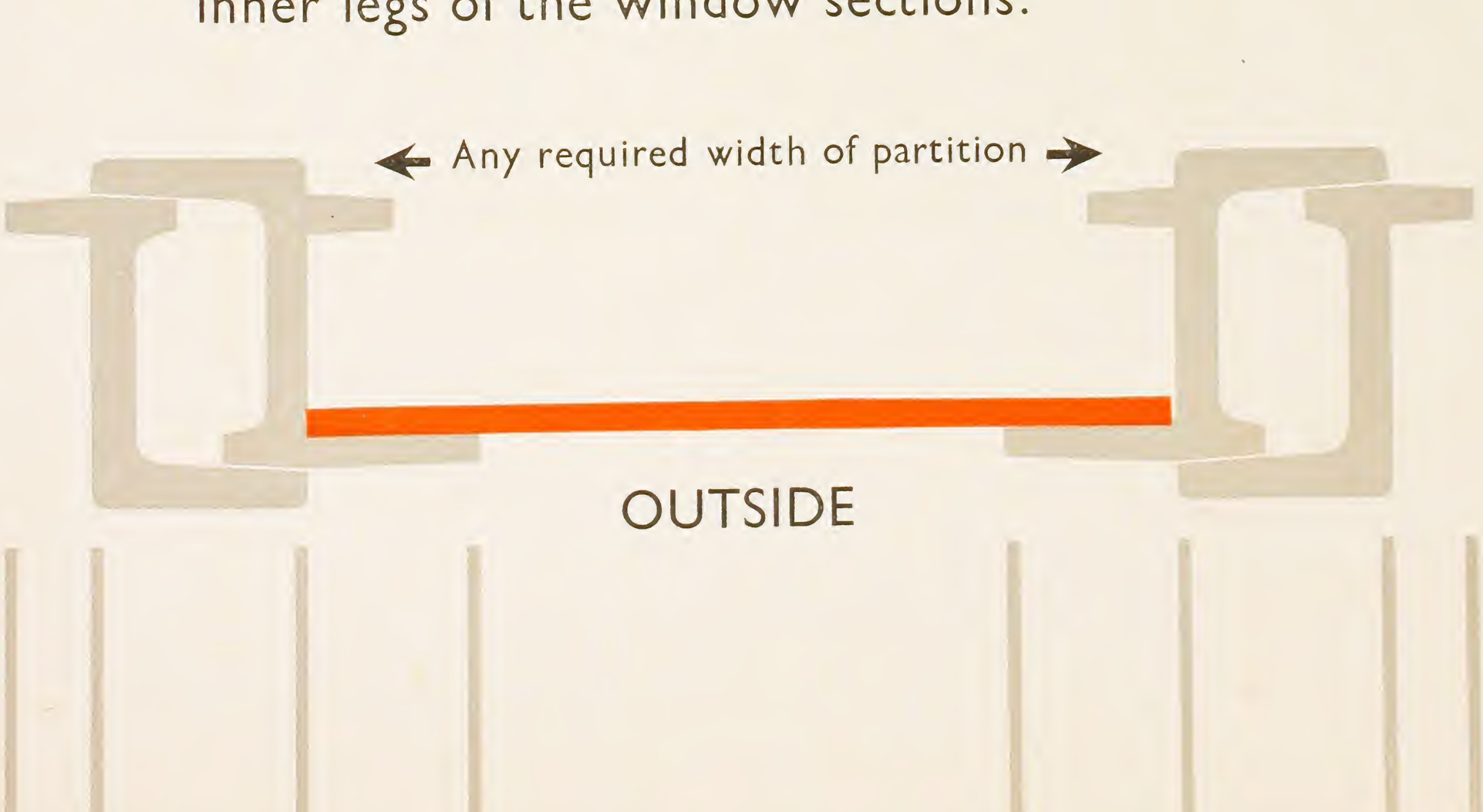




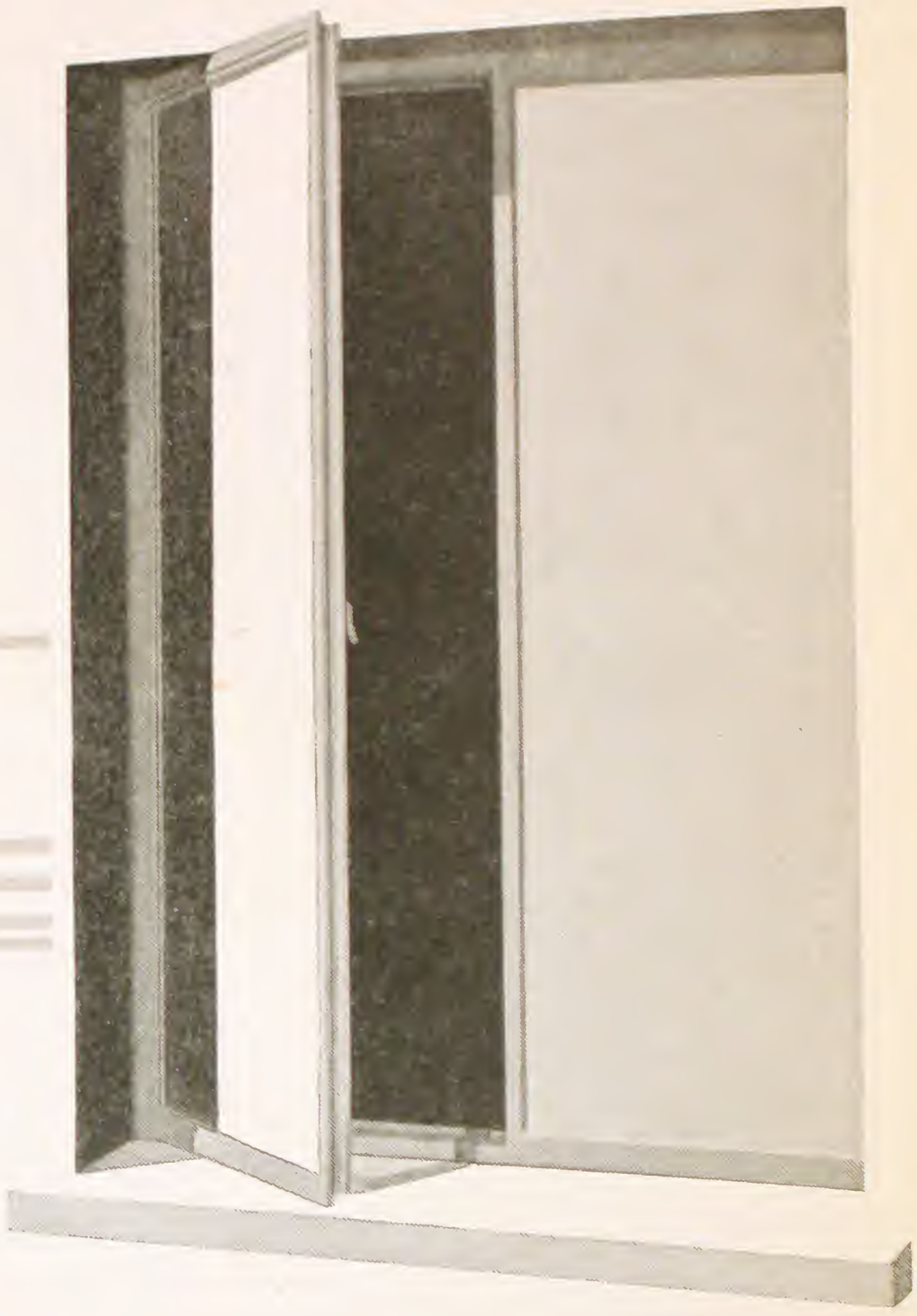
PARTITION MULLIONS



A useful coupling for composite windows when partitions abut against the window opening is provided by rolled steel channel mullions. These are available in all the usual sizes and in all lengths, and can be used with transomes of the same material. Plate mullions while much cheaper than channels, have the additional advantage that they can be made to take partitions of any required width. When wide mullions are required, for reasons of appearance, but not to take partitions, a second plate is screwed to the inner legs of the window sections.



GLAZE AT SIDE

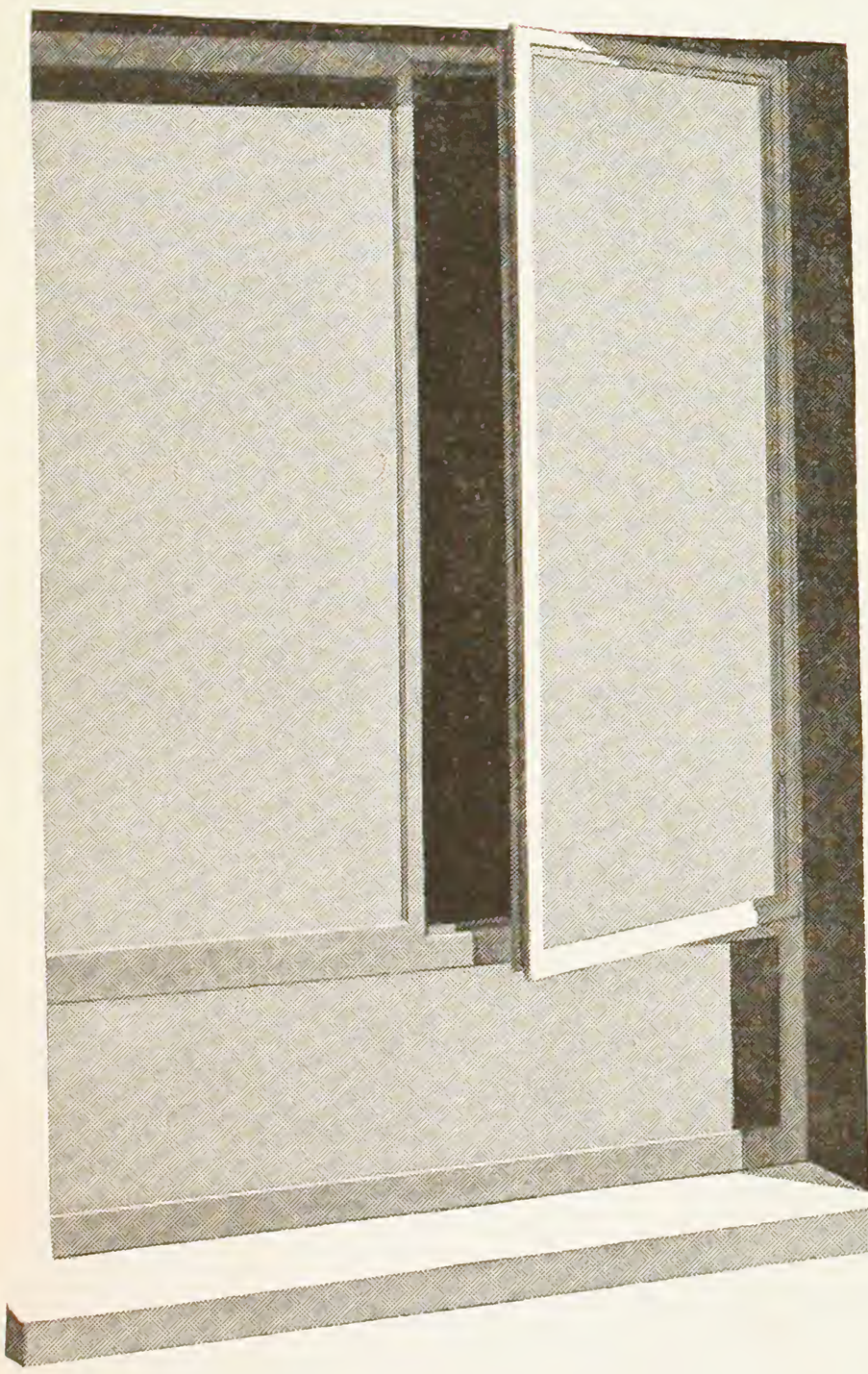


OUTSIDE

This illustration shows a way of combining a fixed light and a ventilator into one unit without a mullion : one jamb of the ventilator becomes the fourth side of the fixed light. In other kinds of composite windows built on this principle, fixed lights may occur on opposite sides of the ventilator or at both its head and cill, but not contiguously.

MINIMUM COUPLING

OUTSIDE



When ordinary transome and mullion couplings are not wanted, and the type of composite window required includes contiguous fixed lights next to the ventilator, a special bar substituted for the fourth side of a fixed light is coupled to the outer frame of the opening casement, and to the frame of another fixed light, in the manner shown here. This construction can be applied at the head of the ventilator as well as at the cill.

TUBULAR

A — 1 11/16" dia. tube with 4½" dia. cast iron caps and bases sent loose.

B — 1 29/32" dia. tube with 4½" dia. cast iron caps and bases sent loose.

C — 2⅜" dia. tube with 4½" dia. cast iron caps and bases sent loose.

D — 1 11/16" dia. tube with 4" x 4" x ⅜" steel base and cap plates welded on.

E — 1 29/32" dia. tube with 4" x 4" x ⅜" steel cap and base plates welded on.

F — 2⅜" dia. tube with 6" x 6" x ⅜" steel base and cap plates welded on.

G — 2" dia. solid with 6" x 6" x ⅜" steel cap and base plates welded on.

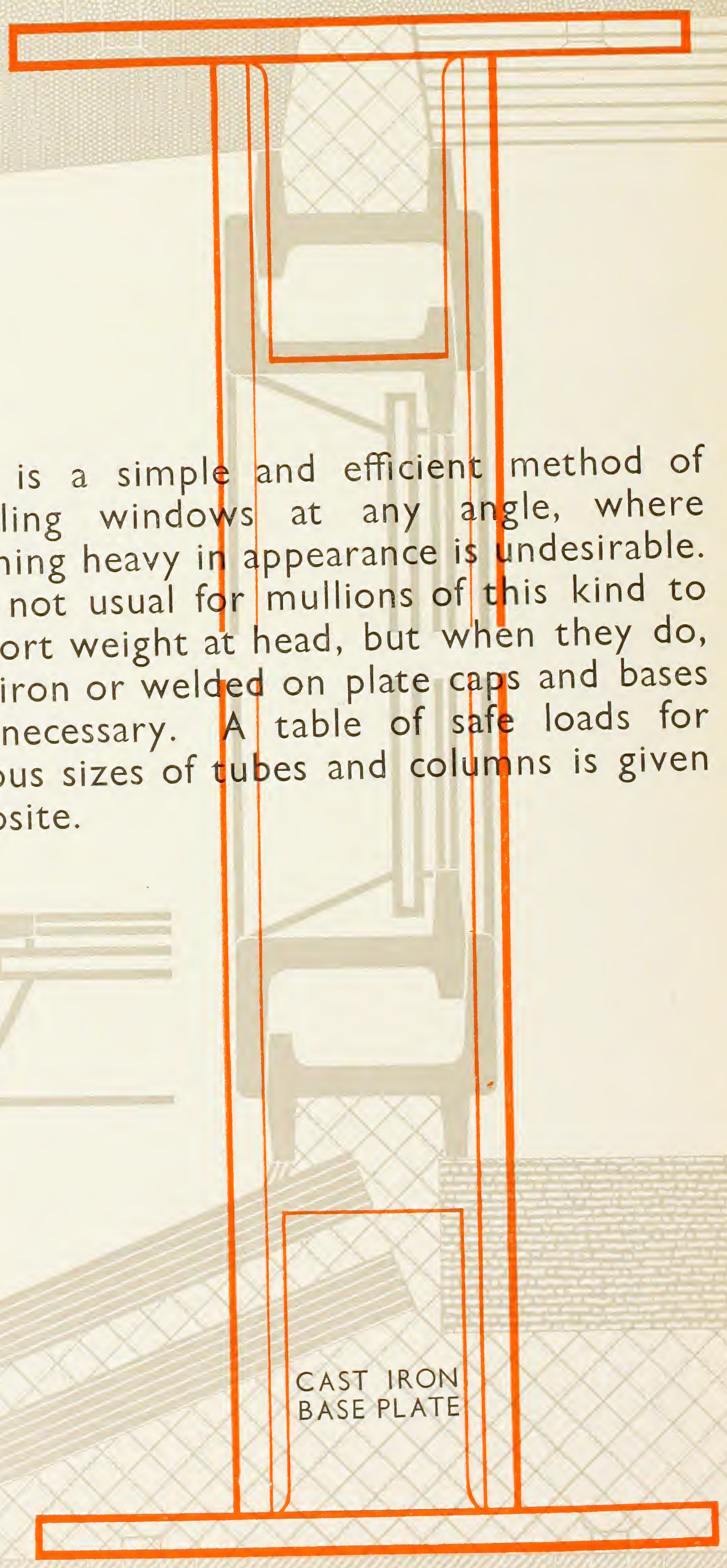
H — 2½" dia. solid with 9" x 9" x ⅜" steel base and cap plates welded on.

SAFE LOADS IN TONS

HEIGHT	A	B	C	D	E	F	G	H
up to 3ft.	1·00	1·25	1·75	1·50	2·00	2·75	5·50	8·50
3ft. to 4ft.	·75	1·17	1·50	1·25	1·75	2·50	4·75	7·50
4ft. to 5ft.	·50	·90	1·25	1·00	1·50	2·25	4·00	6·50
5ft. to 6ft.	·20	·60	1·00	·75	1·00	2·00	3·25	5·50

NOTE: In this table allowance has been made for eccentricity of loading. When using this table great care should be taken to ensure that the bearing areas of the caps and bases are sufficient for the loads imposed.

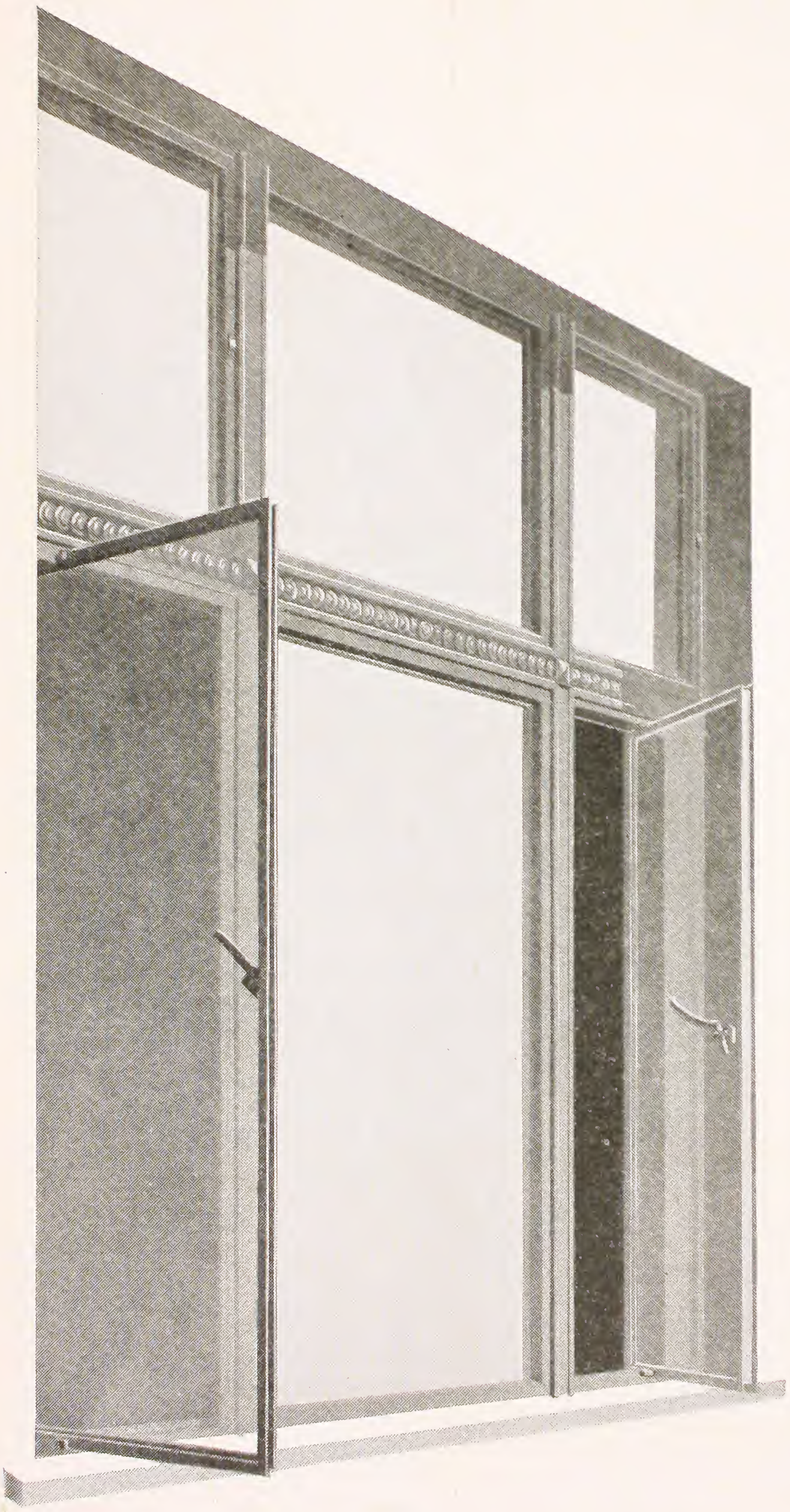
AND SOLID COLUMN MULLIONS



This is a simple and efficient method of coupling windows at any angle, where anything heavy in appearance is undesirable. It is not usual for mullions of this kind to support weight at head, but when they do, cast iron or welded on plate caps and bases are necessary. A table of safe loads for various sizes of tubes and columns is given opposite.

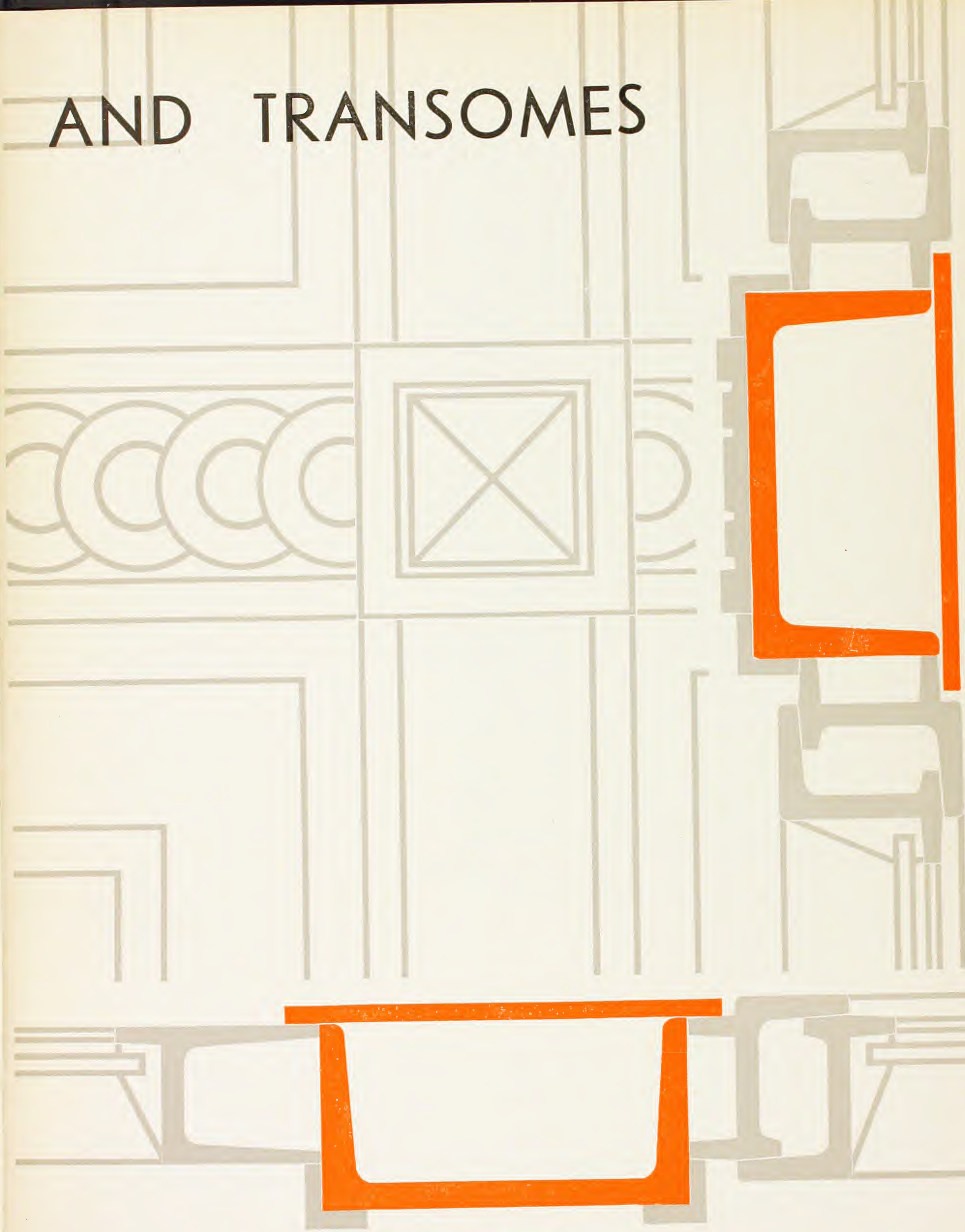
OUTSIDE

BOXED CHANNEL MULLIONS



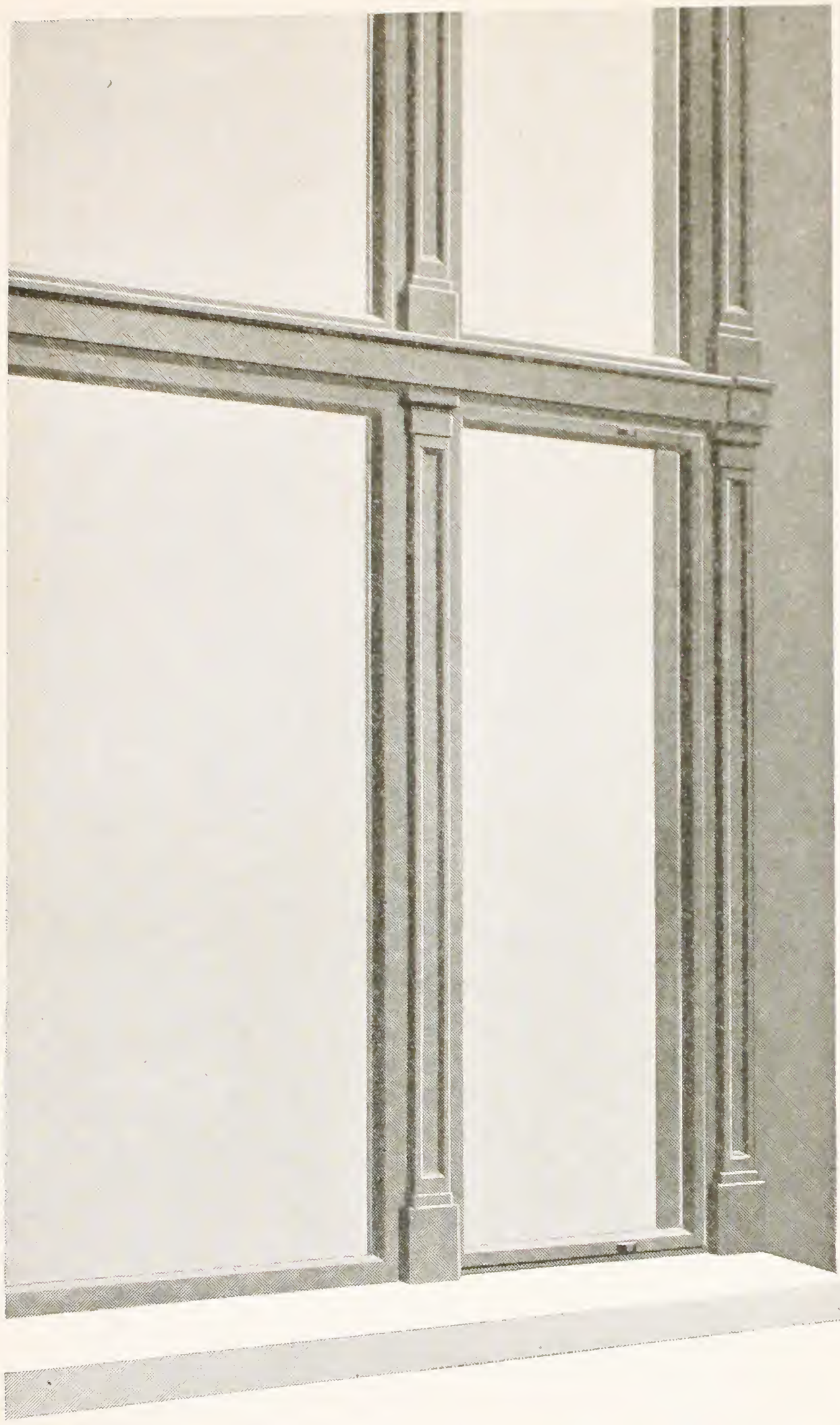
Channel mullions and transomes can be adapted to decorative effects in many ways; one of the more usual being to plant enrichments on the outer face. These enrichments may be in cast iron, bronze, aluminium, etc., or in the form of rolled steel mouldings. When both boxed channel transomes and mullions are used, the latter are continuous throughout the whole height of the window. The most commonly used channels for this purpose are 2" x 1½", 3" x 1½", 3" x 2", 4" x 2", 5" x 2½", and 6" x 3".

AND TRANSOMES



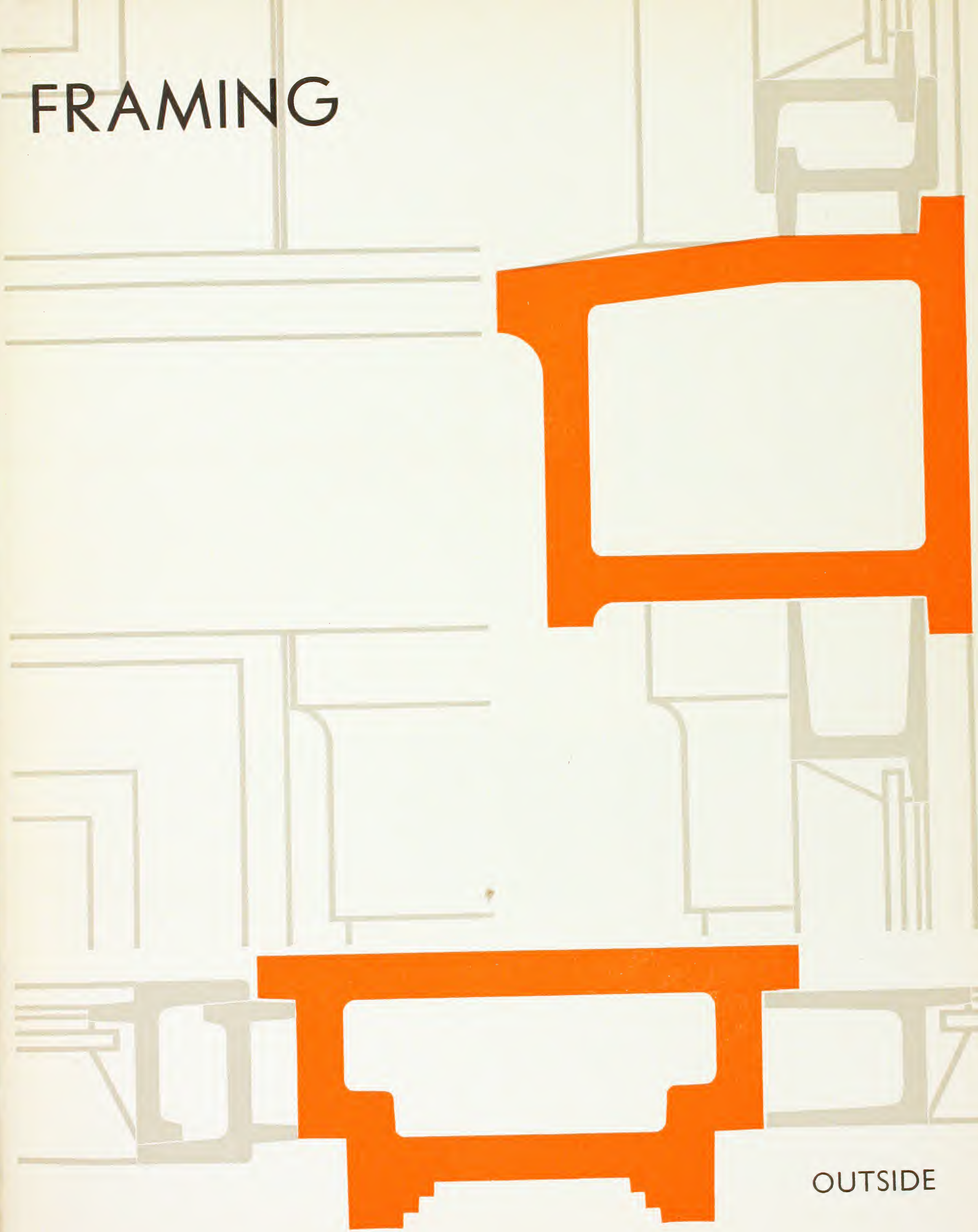
OUTSIDE

CAST IRON



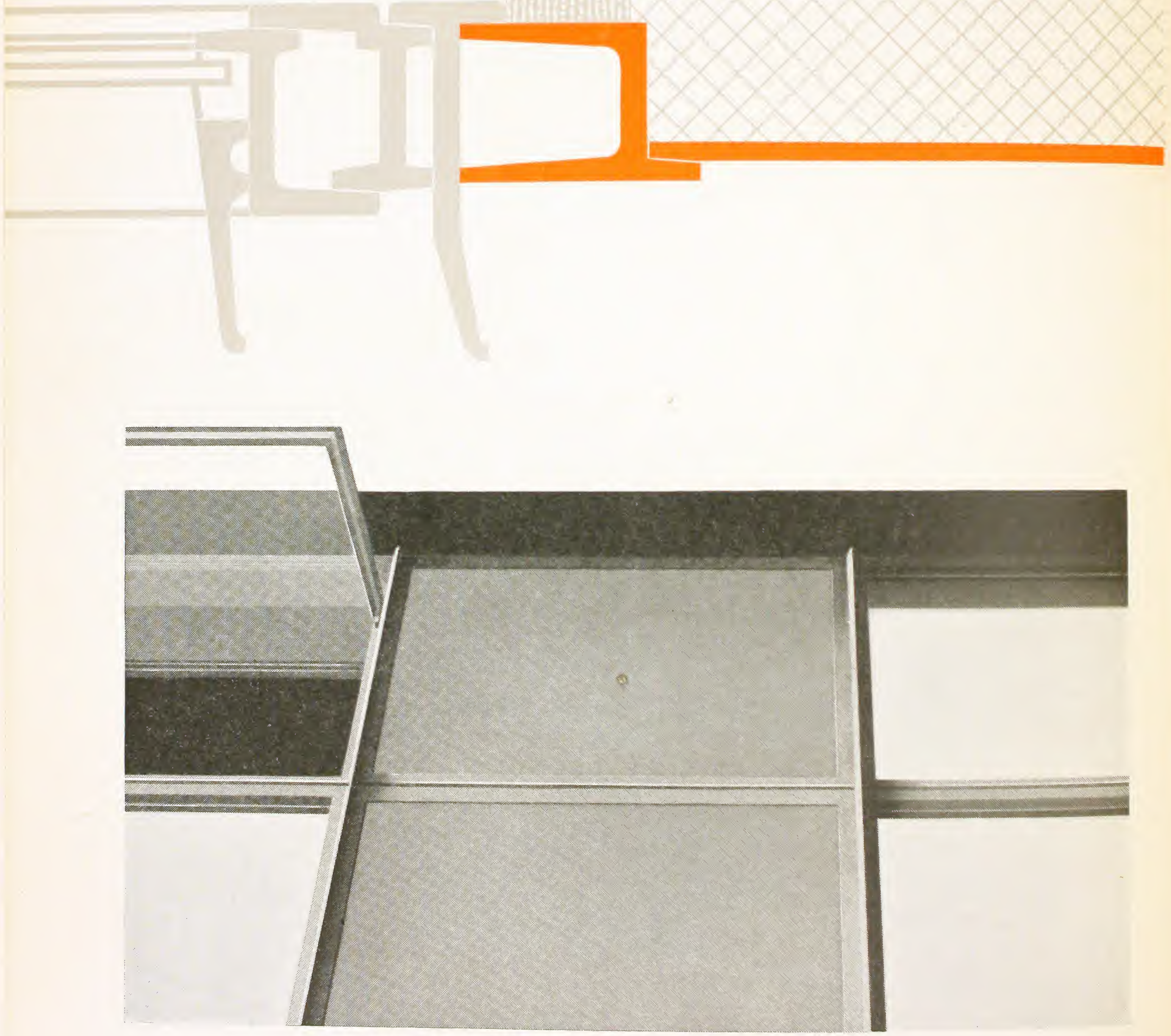
Where something is required, more elaborate than can be provided by boxed channel mullions and transomes, use is made of cast iron. The scope of design in this material is practically unlimited, and there is consequently no really typical detail.

FRAMING



OUTSIDE

STEEL

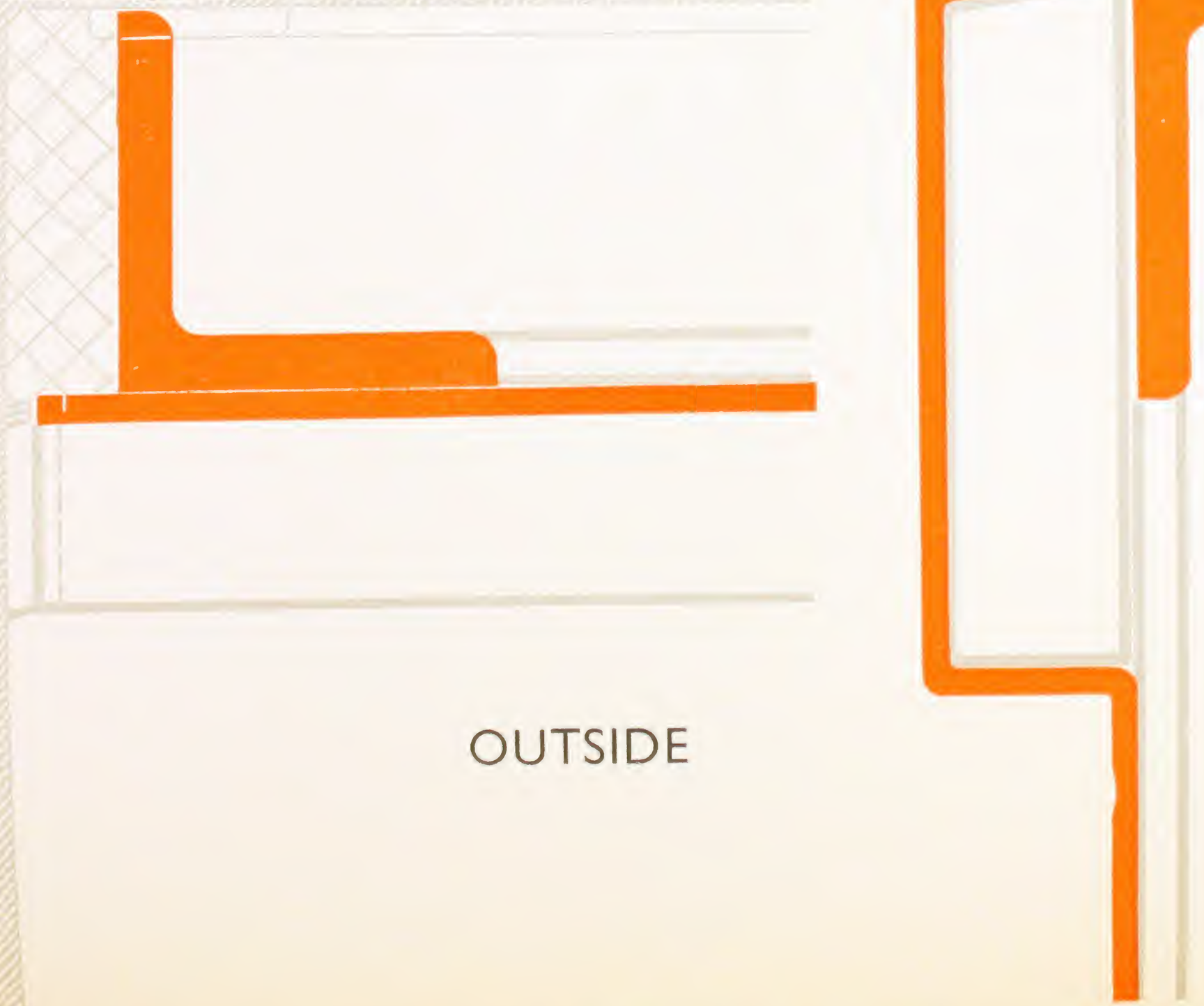


STEEL PLATE BREAST PANELS

Where simplicity of design is desired or economy is essential, panels of steel plate, in place of more costly facing between floors, can be employed to advantage. They can be perforated and provided with hit and miss ventilators so that ventilation can be obtained when required through the radiator.

OUTSIDE

DETAIL AT JAMB SHOWING POSITION OF METAL WINDOW



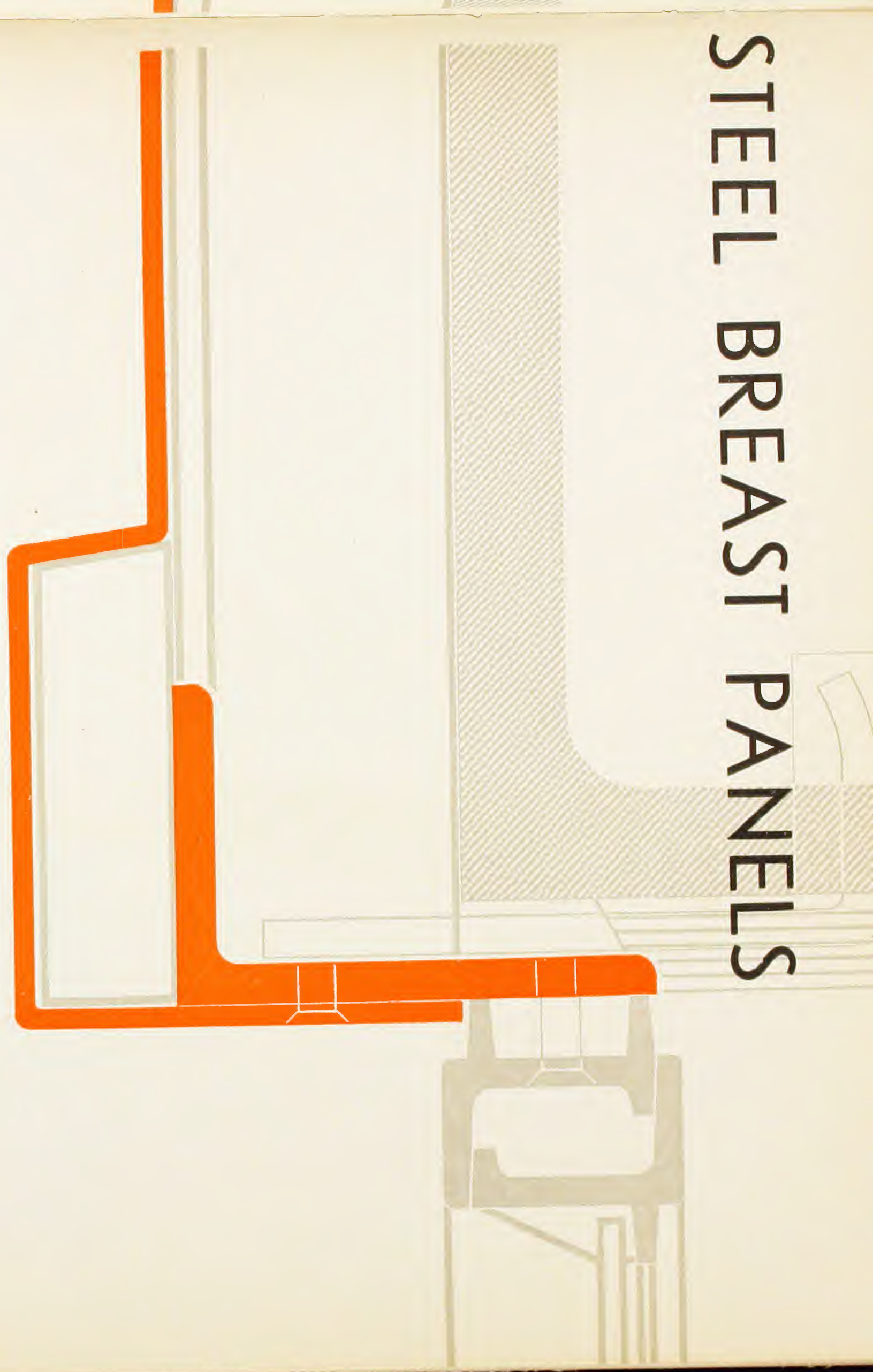
OUTSIDE

PRESSED

STEEL BREAST PANELS

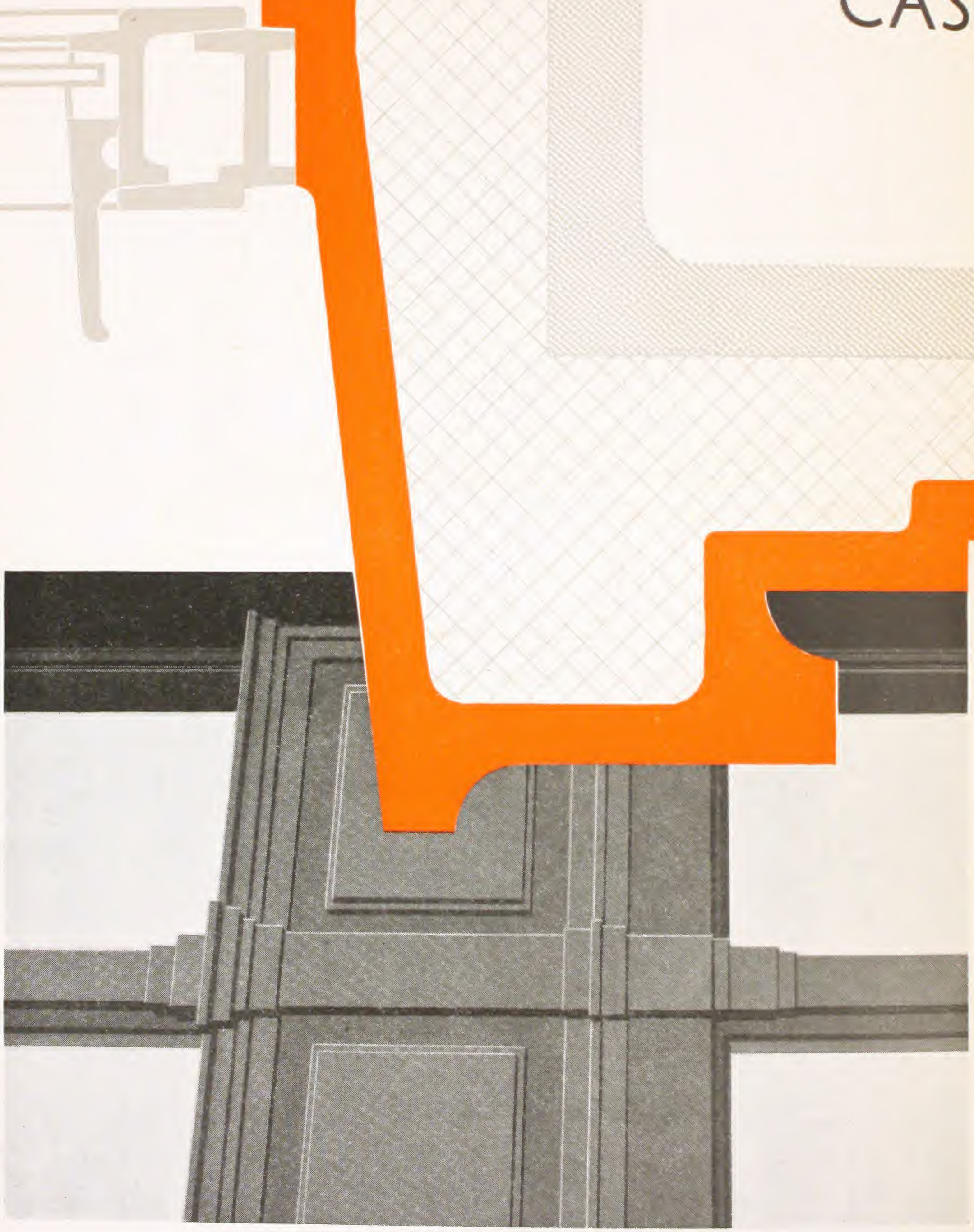
A typical example of pressed steel breast panel constructed of 10 g. plate carried on angle framing.

The panel is not returned at the jambs, a space being left between the angle frame and the masonry to take a concrete fillet.

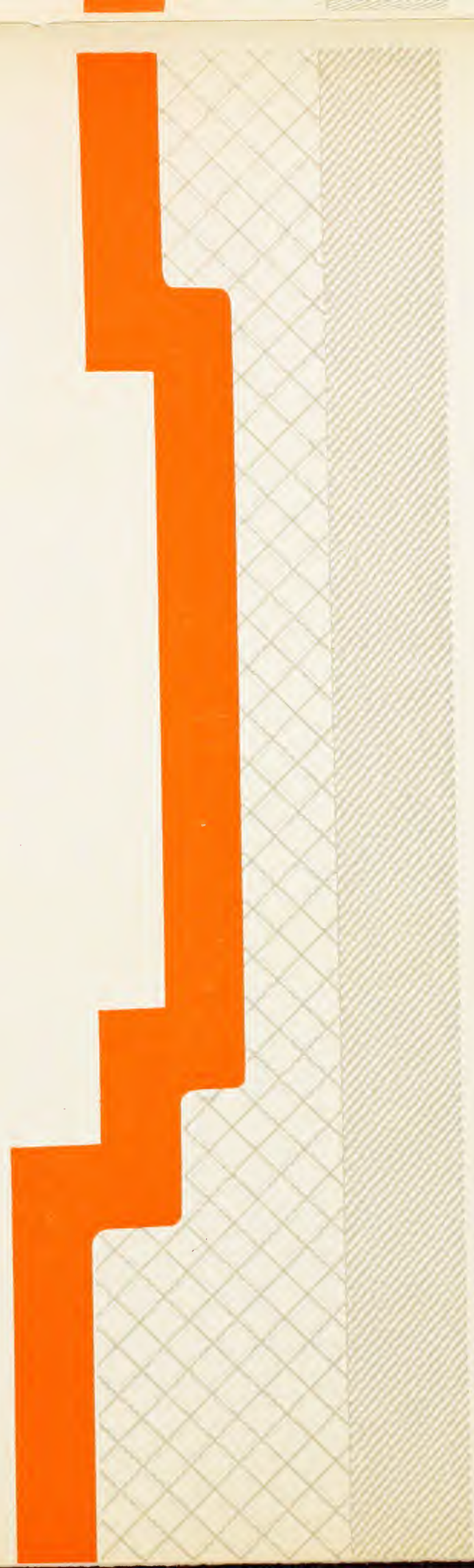


OUTSIDE

CAST



IRON BREAST PANELS



Although cast iron is more commonly used for decorative work of this kind, bronze, or combinations of different metals can be employed. Design of course varies according to individual taste, the illustration here being typical of what has been often supplied.

OUTSIDE

FIXING AND GLAZING

We want to be allowed to undertake the fixing of all Crittall casements. The importance of this essential service can hardly be overestimated: there are no windows that cannot be rendered inefficient by faulty fixing. Charges for fixing are not great. When quoted for by us "FIXING" includes the sorting of the windows on the various floors, carrying them to the openings, marking off lug or plug positions: assembling composites, bedding and pointing them with mastic inside and out at the mullions and transomes: fixing lugs to the frames, placing the windows in the openings and bedding them with mastic at the cill, plumbing up, wedging into position and adjusting the ventilators ready for the contractors to build the windows in and (where necessary) form the cement fillet: raking out the joint on the outside between the frame and the Builders' work at the head and jambs and pointing with mastic cement: later (when rougher trades have finished) applying fittings, fixing any gearing or hopper side cheeks, and giving the ventilators final adjustment.

When we do not fix, full fixing instructions will be sent with every consignment. These should be studied carefully, and must be fully understood by those actually handling the windows.

GLAZING is only less important than fixing. There are certain principles for glazing metal windows which should be known to all glaziers. They are fully explained in the Crittall fixing instructions.

FIXING DETAILS

including full size details of
all the more usual methods
of fixing metal windows.

Particularly note :—

A good slope to cill,
B throating or weather bar at head,
C provision for cement fillet,
D mastic pointing.

BRICK OR STONE

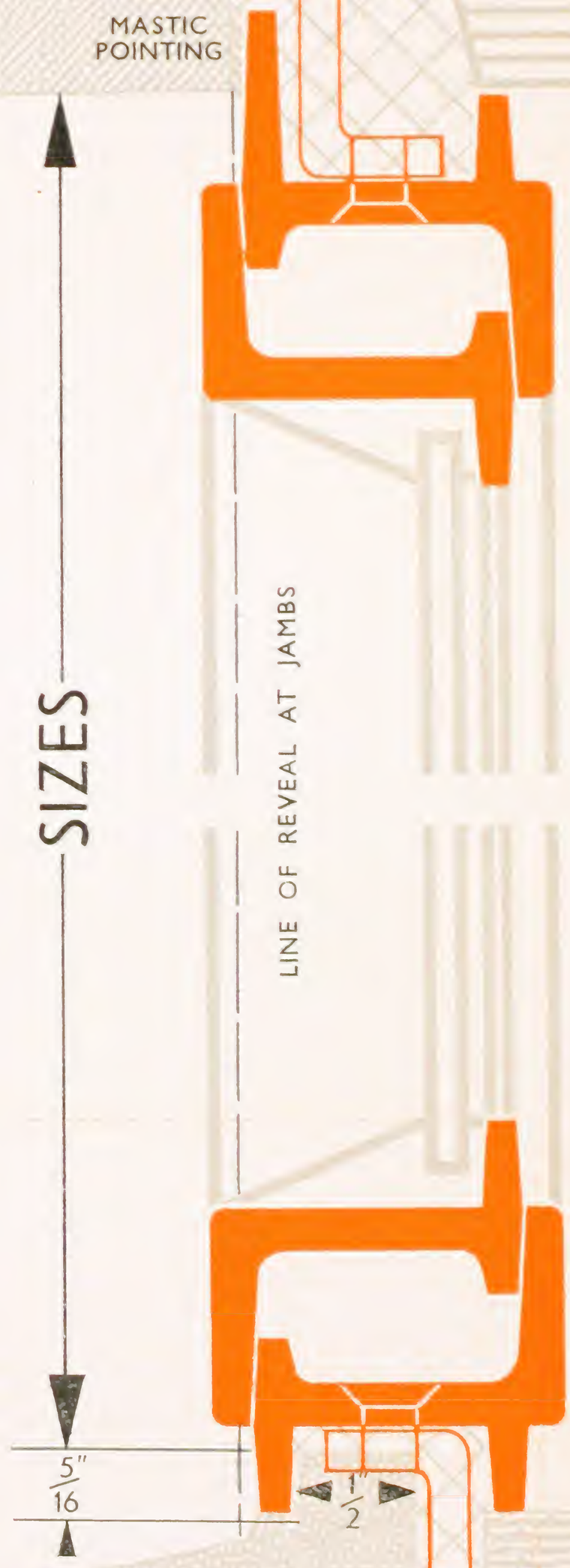
MASTIC POINTING

CONCRETE LINTOL

PLASTER

INTERNAL REVEAL

Extended leg section at head and jambs used as weather check.



WINDOW BOARD

STONE CILL

INTERNAL REVEAL

Alternative detail ; equal leg section at head and jambs.

BRICK OR CONCRETE

FLUSH OPENINGS

Extended leg outer frame allows approximately ½" for internal linings.

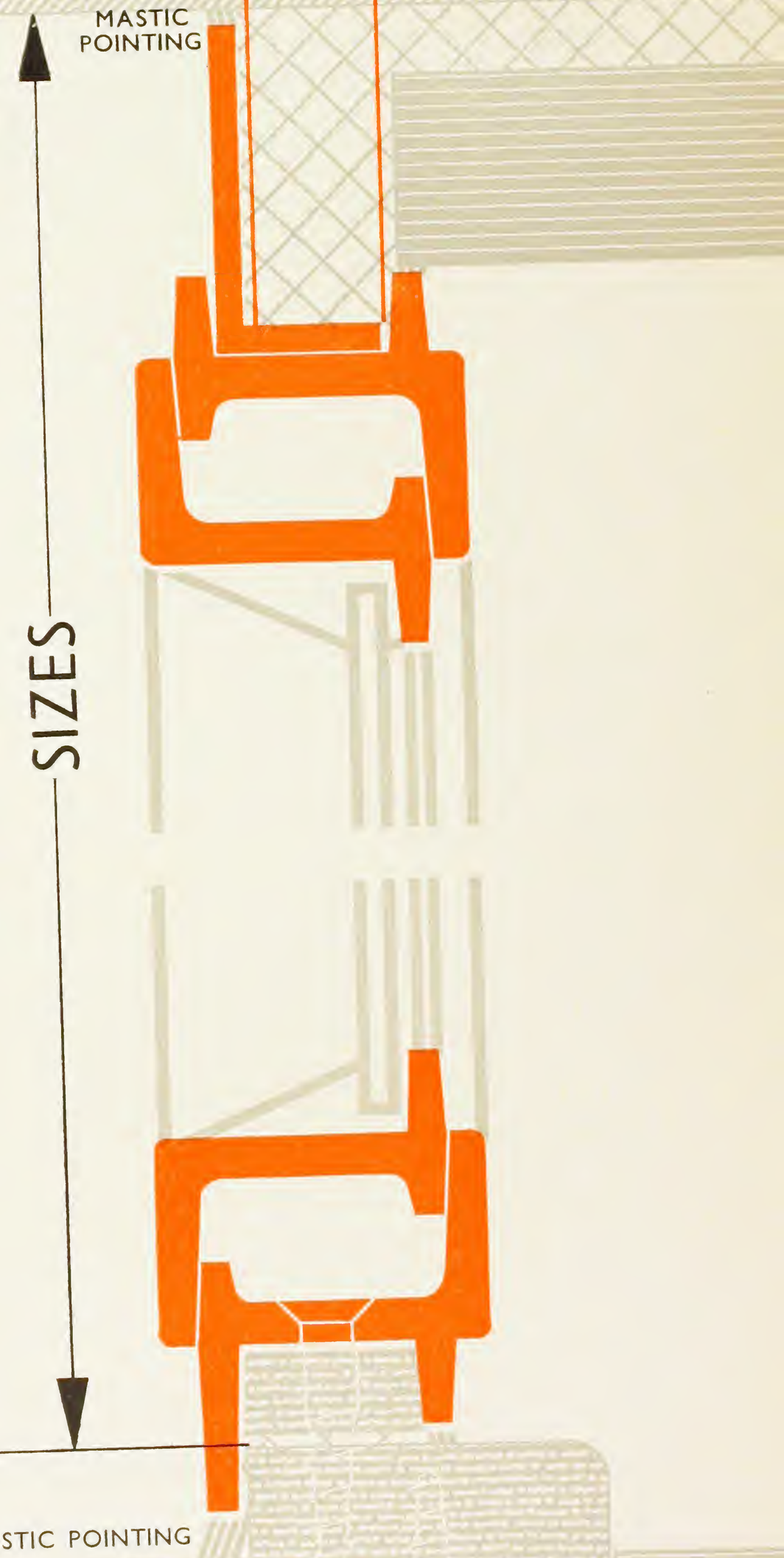
OUTSIDE

STONE CILL

TER

FLUSH OPENINGS

Where thicker internal linings are required an angle fillet can be fitted at head and jambs.



SLATE CILL

CONCRETE LINTOL

CEMENT FILLET

PLASTER

FLUSH OPENINGS WITH EXTERNAL RENDERING AND INTERNAL LINING.

SIZES

OUTSIDE

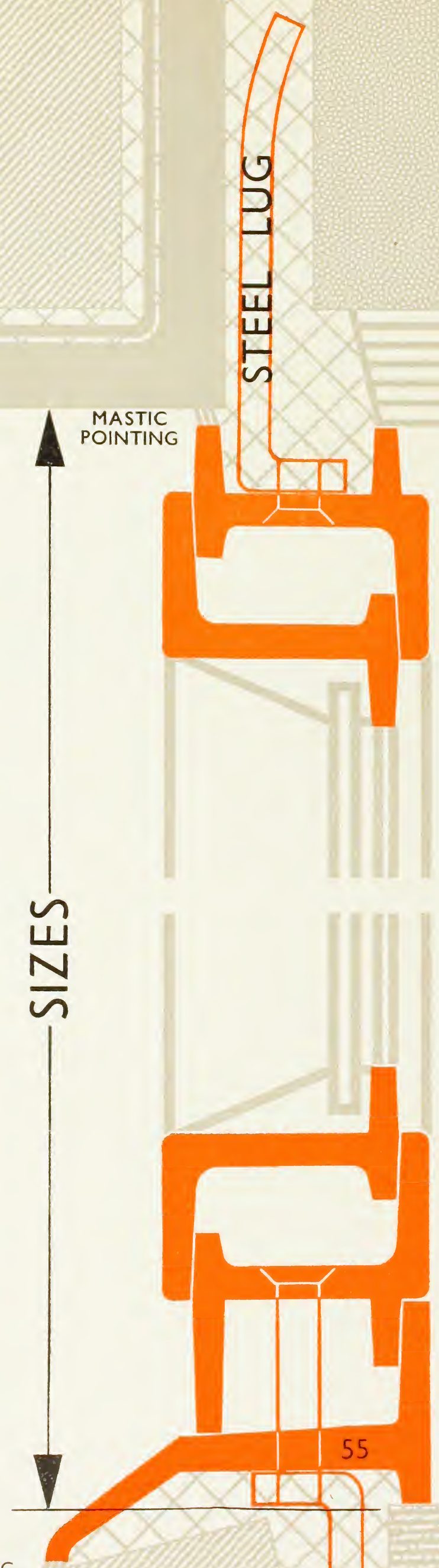
MASTIC POINTING

TILE CILL

TER

ANGLE
SUPPORTING ARCH.

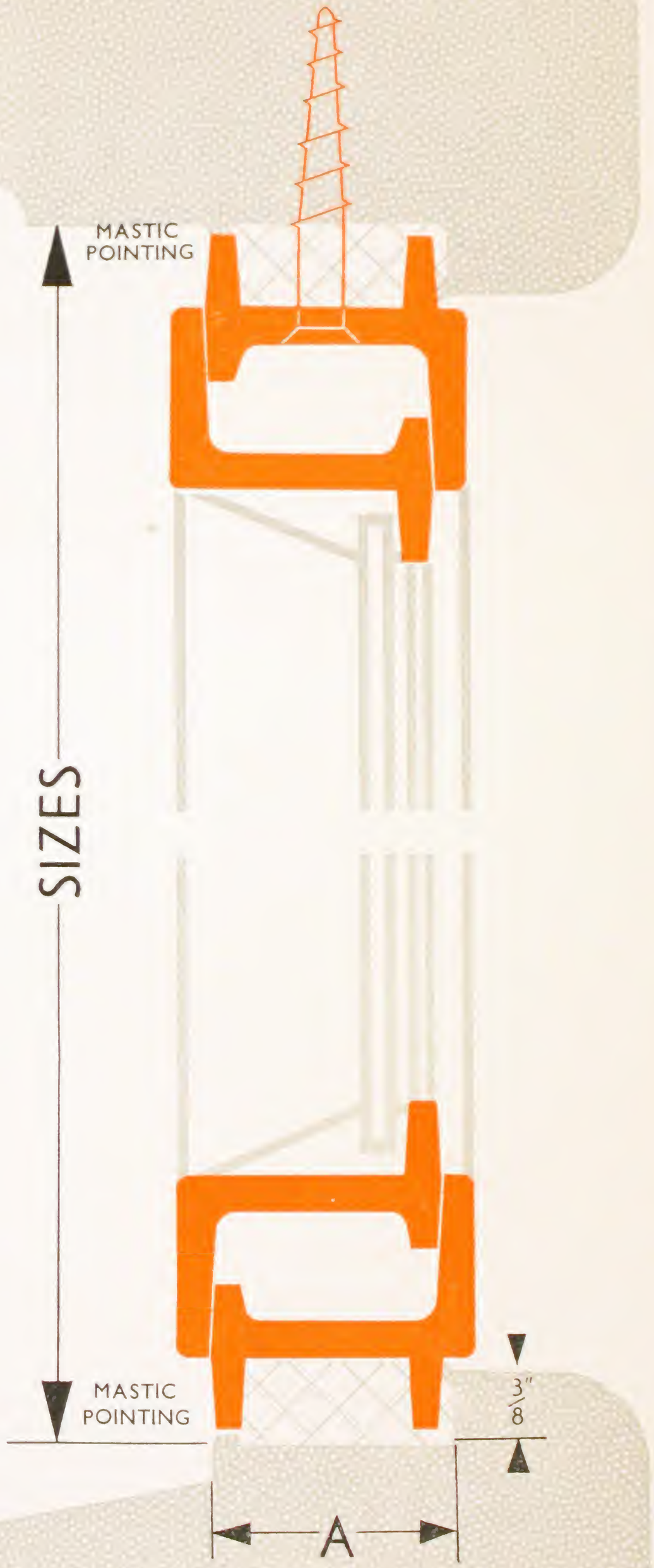
A special cill bar is shown
in this detail.



BRICK CILL

OUTSIDE

FRAMED OPENINGS



For small section dimension A is 1⅛"

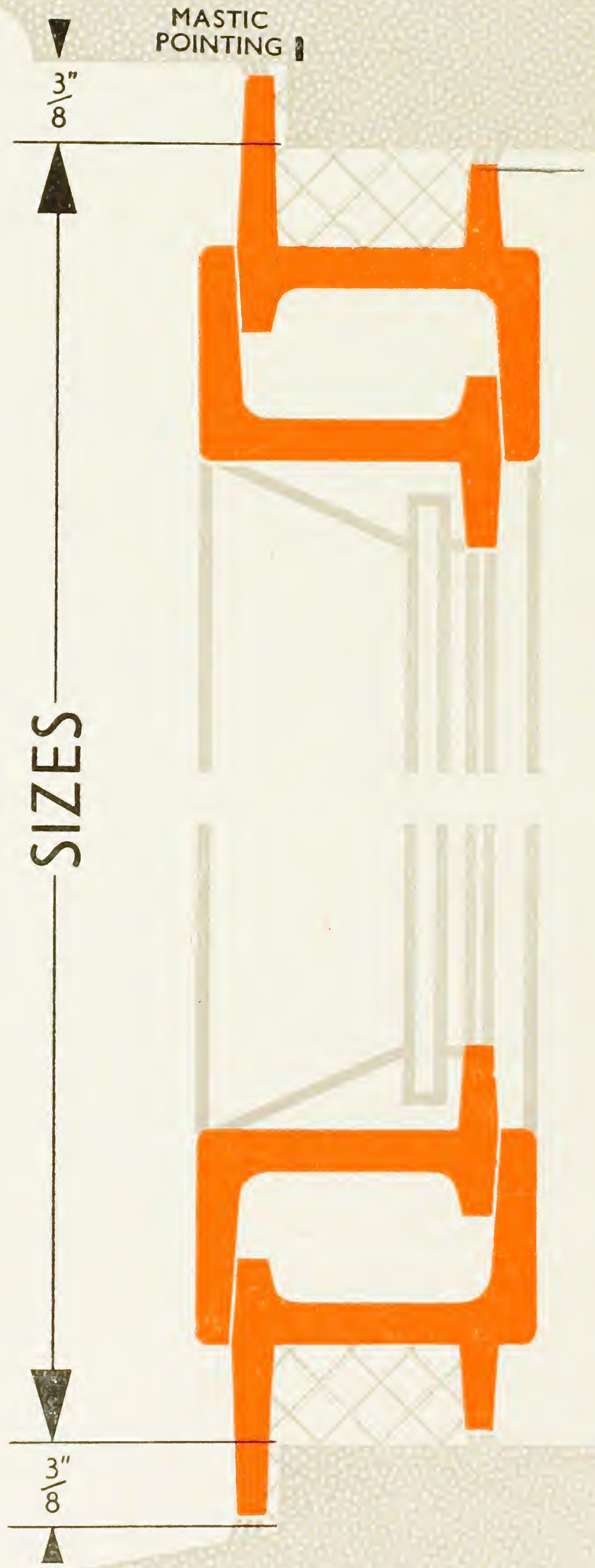
For medium section 1¼"

For large section 1½"

FRAMED OPENINGS

Showing the use of extended leg section as used with certain hopper side check constructions.

OUTSIDE



BRICKWORK

CAVITY WALLS
a jamb detail for
internal reveals.

SIZES

SLATE DAMP COURSE

BRICKWORK

OUTSIDE

ALLS
for
eals.

ES—

REINFORCED CONCRETE LINTOL

CAVITY WALLS
a head detail for
internal reveals.

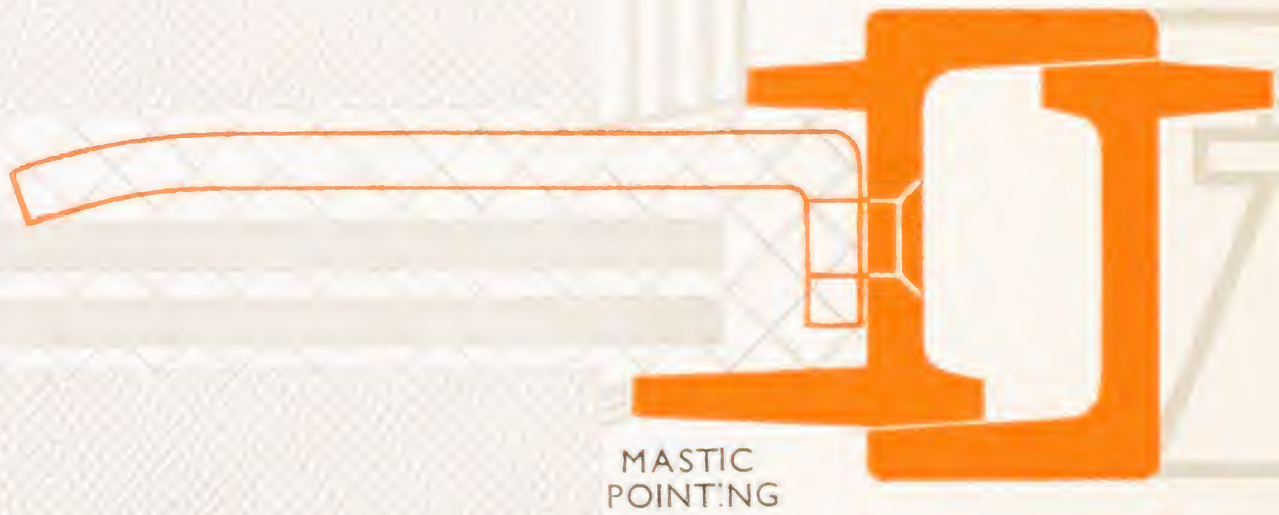
OUTSIDE

BRICKWORK

SLATE DAMP COURSE

BRICKWORK

CAVITY WALLS
a jamb detail for
flush openings

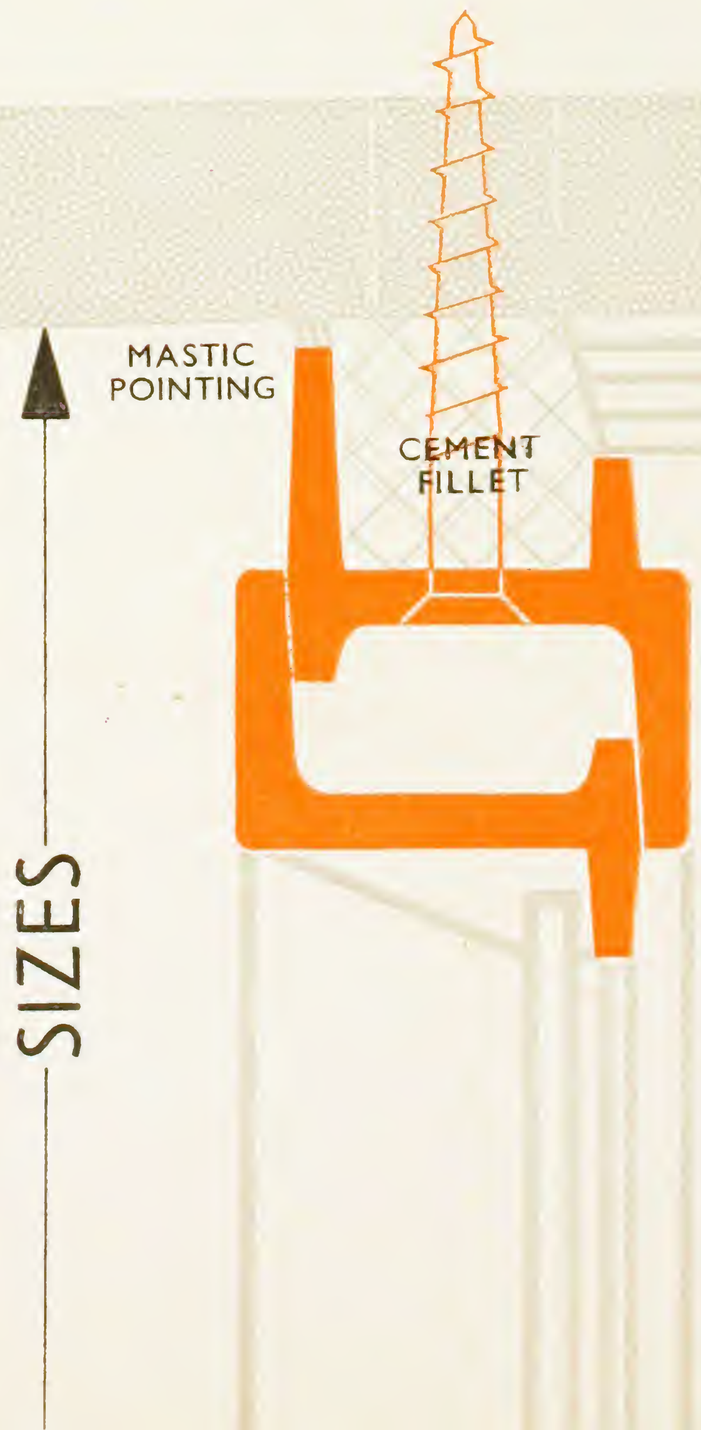


SIZES

OUTSIDE

BRICKWORK

REINFORCED
CONCRETE LINTOL

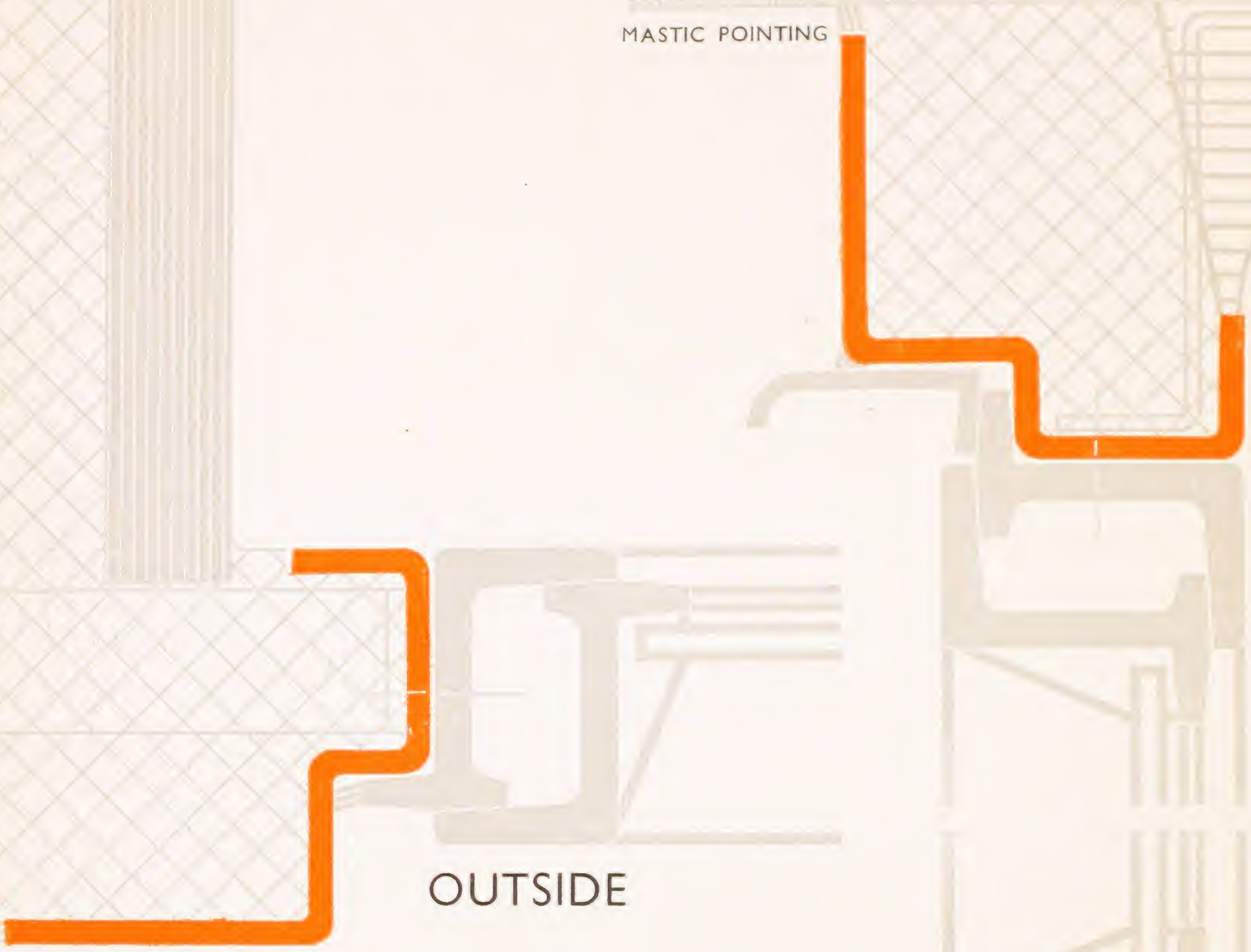


CAVITY WALLS
a head detail for
flush openings

OUTSIDE

SIZES

METAL



A sub-frame should be built into the opening before the window itself is delivered, thus avoiding possible damage to the latter by rougher trades.

The example given on this page is intended for use with an internal tile finish.

SUB-FRAMES

An alternative sub-frame for use with internal plaster finish.
Although the two profiles shown on these two pages will suit normal requirements, variations can be made to comply with special demands. Cills alone can be supplied if required.

METAL CILLS

ROLLED STEEL

Metal cills can be supplied to suit any detail of work. They are made to project 3″ beyond the window on each side, and to avoid possible damage in transit they are sent loose. The cill illustrated on this page is of rolled steel and can be supplied in lengths up to 12 feet without a joint. Joints can be made by a plate rivetted on the under-side of one member and screwed to the other. Joints may alternatively be butt welded, provided that the resulting cill is not too large for transport.

OUTSIDE

No. 742

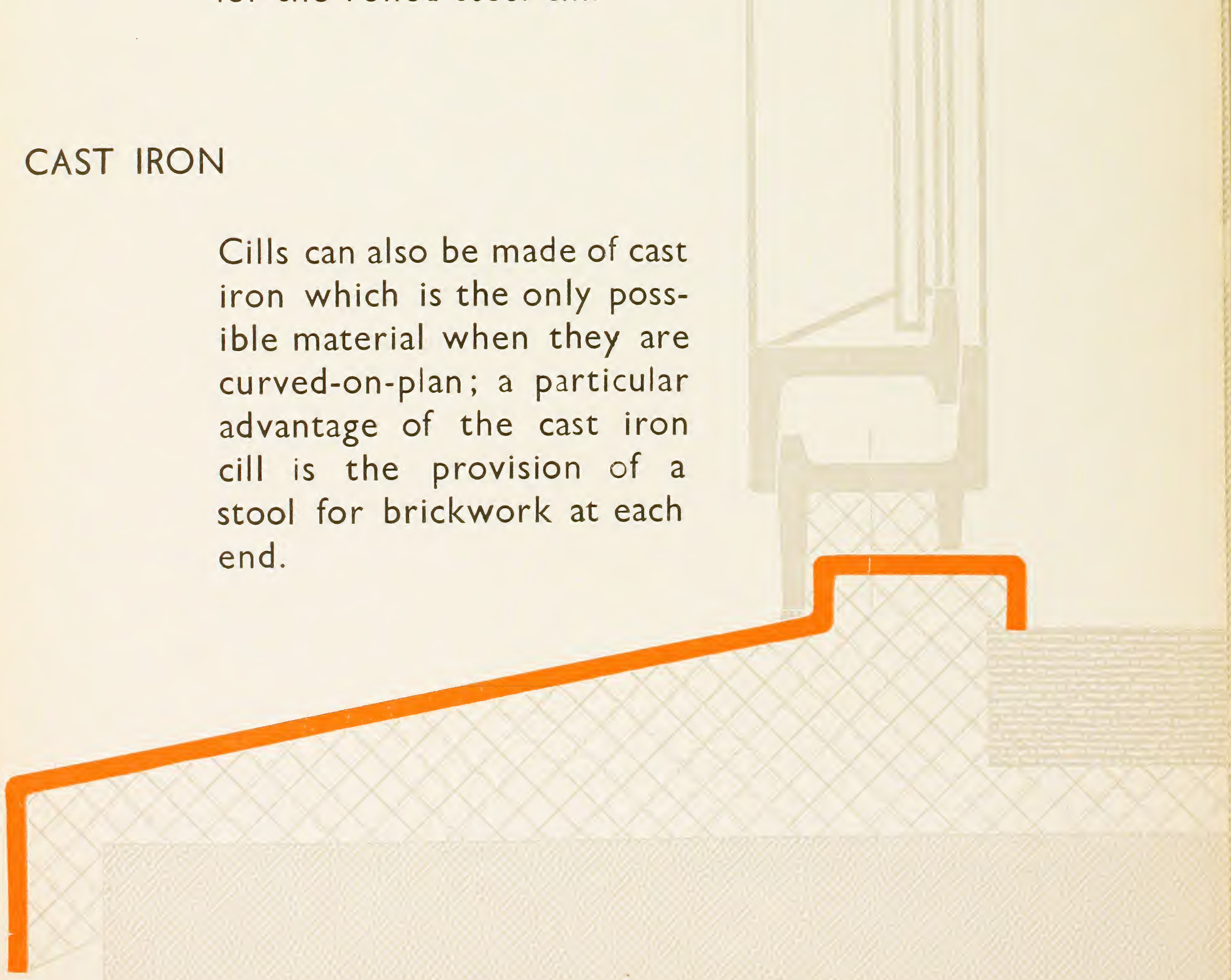
METAL CILLS

PRESSED STEEL

This is a pressed steel cill the overall width of which is variable according to the thickness of the wall. It can be supplied in unjointed lengths up to 9 feet, and jointing can be effected in the same ways as described for the rolled steel cill.

CAST IRON

Cills can also be made of cast iron which is the only possible material when they are curved-on-plan; a particular advantage of the cast iron cill is the provision of a stool for brickwork at each end.



PROTECTION AND FINISH

During manufacture great care is taken to ensure that Crittall Casements are protected from rust. Before despatch they are completely immersed in a paint-dip, which ensures complete penetration of paint to all surfaces. It must, however, be fully understood that this is merely a priming coat, intended to protect the metal during transit and installation. As soon as the windows are fixed they should receive the first coat of paint; any rust spots resulting from damage in transit or on the job first being carefully removed by rubbing with emery paper. Finishing coats—at least two of good white lead paint to be applied afterwards. In no circumstances must finishing coats contain either

(a) Lithopone
(b) Carbon Black

} both of which are highly corrosive to metal.

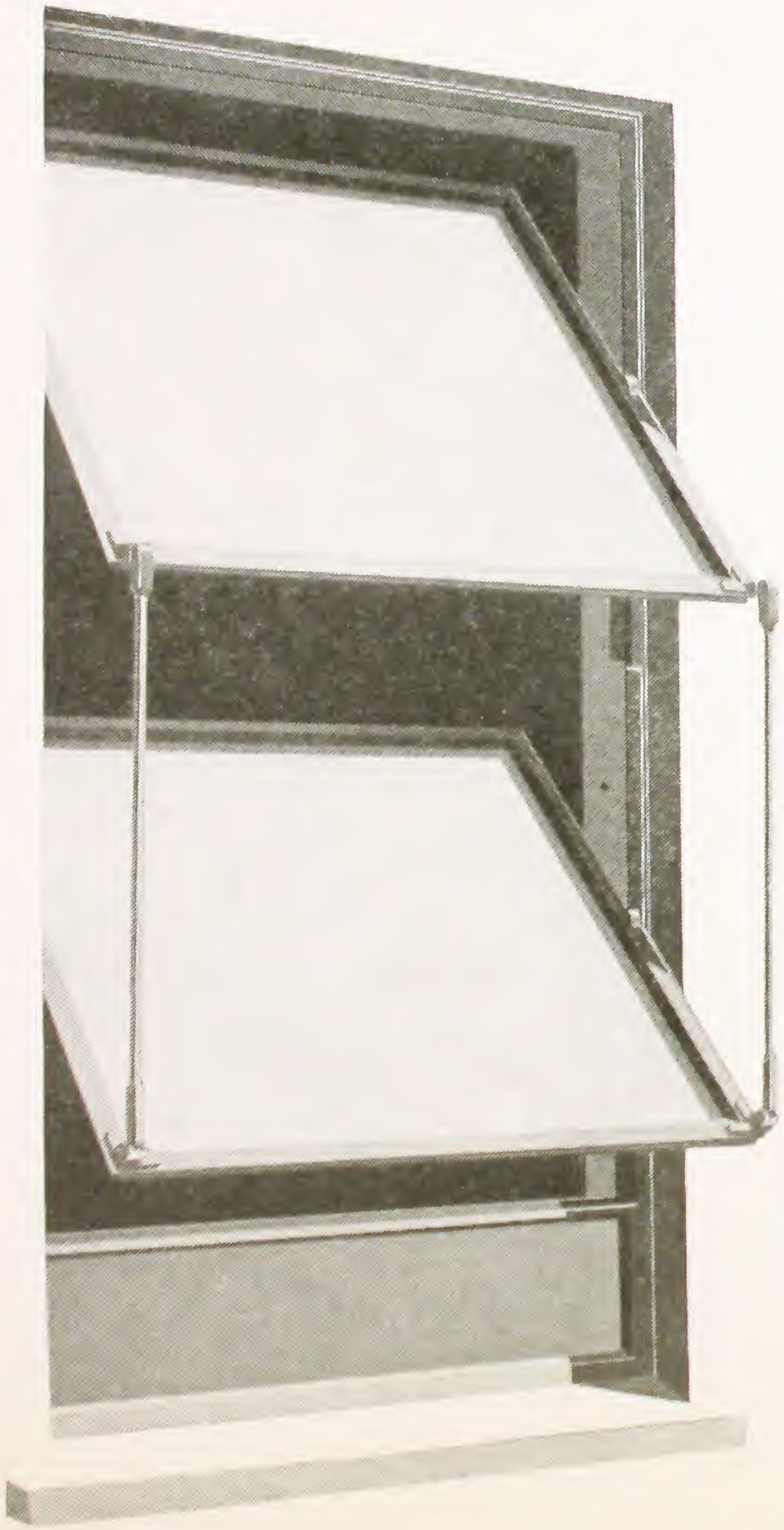
If this procedure has been followed windows will require only normal repainting thereafter.

Where additional protection is required we advise the treatment of the windows with Crittall Zincspra. This process covers the frames with a complete coat of zinc and materially assists the protective qualities of the paint. The process is fully described in a separate leaflet, No. 89, which will be sent on application.

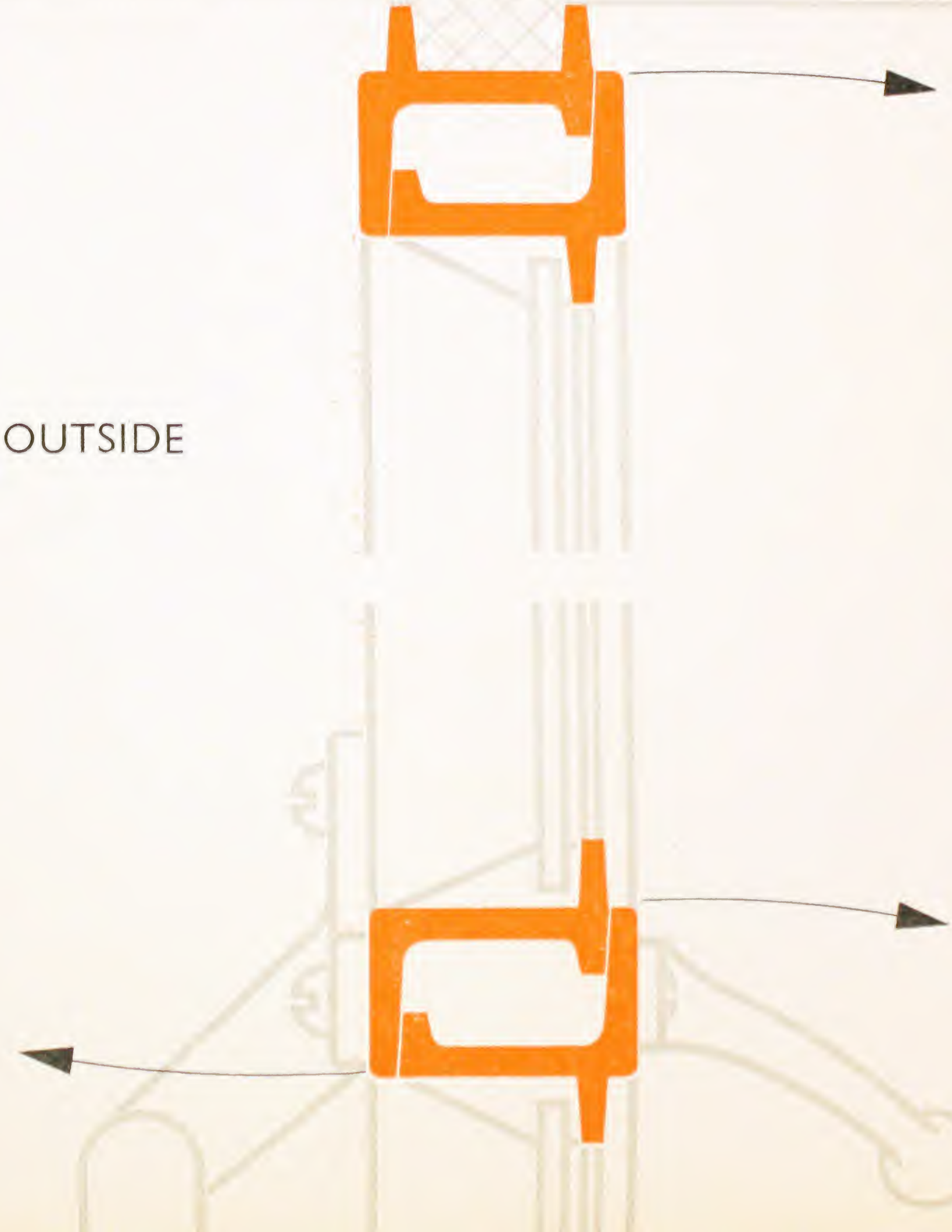
Other protective finishes for special conditions are available but painting and Zincspra have been found best to cover all normal requirements.

SPECIAL PURPOSE WINDOWS

including balance windows,
sliding-folding windows,
double windows, flyscreens
and louvre windows.

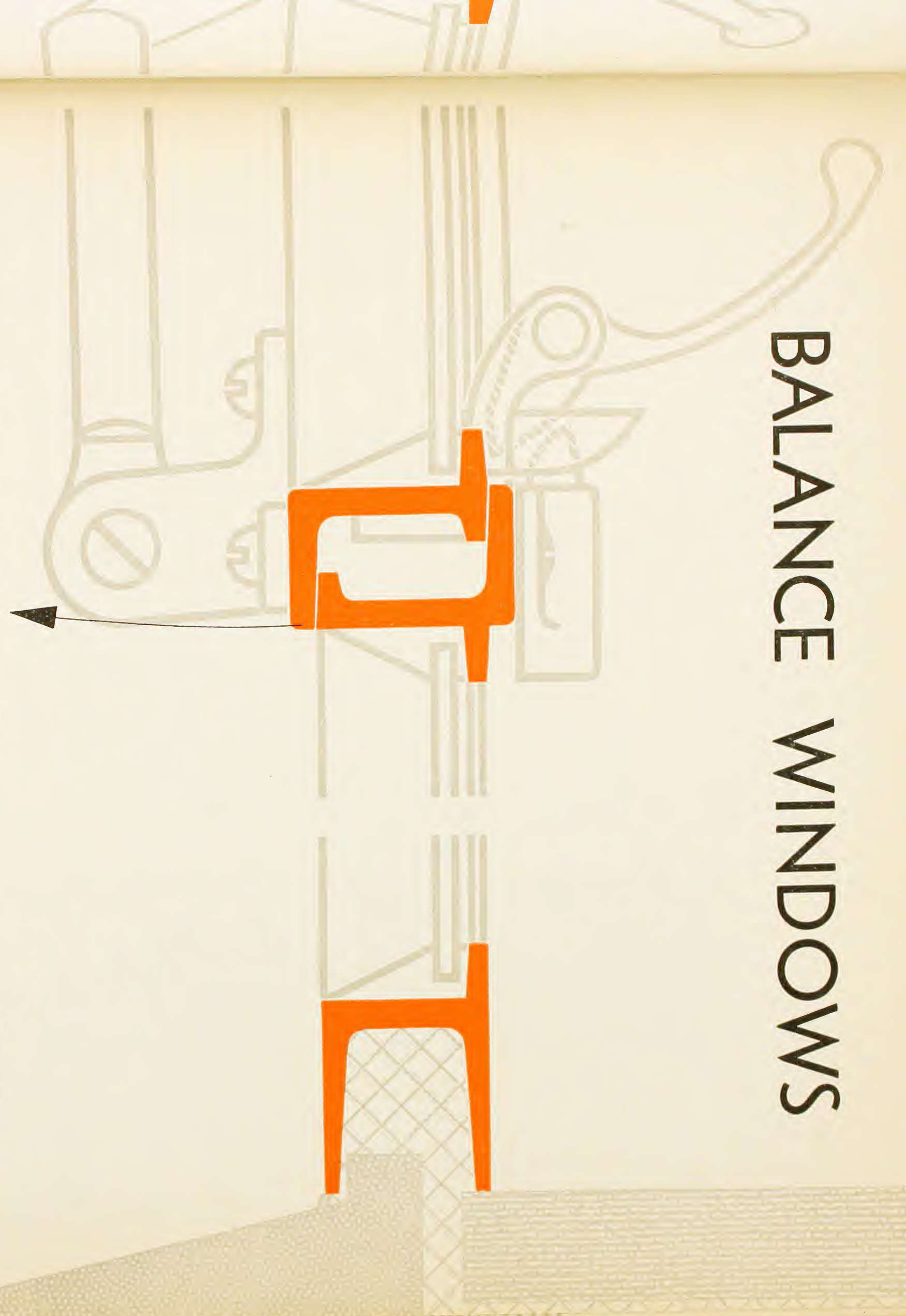


OUTSIDE

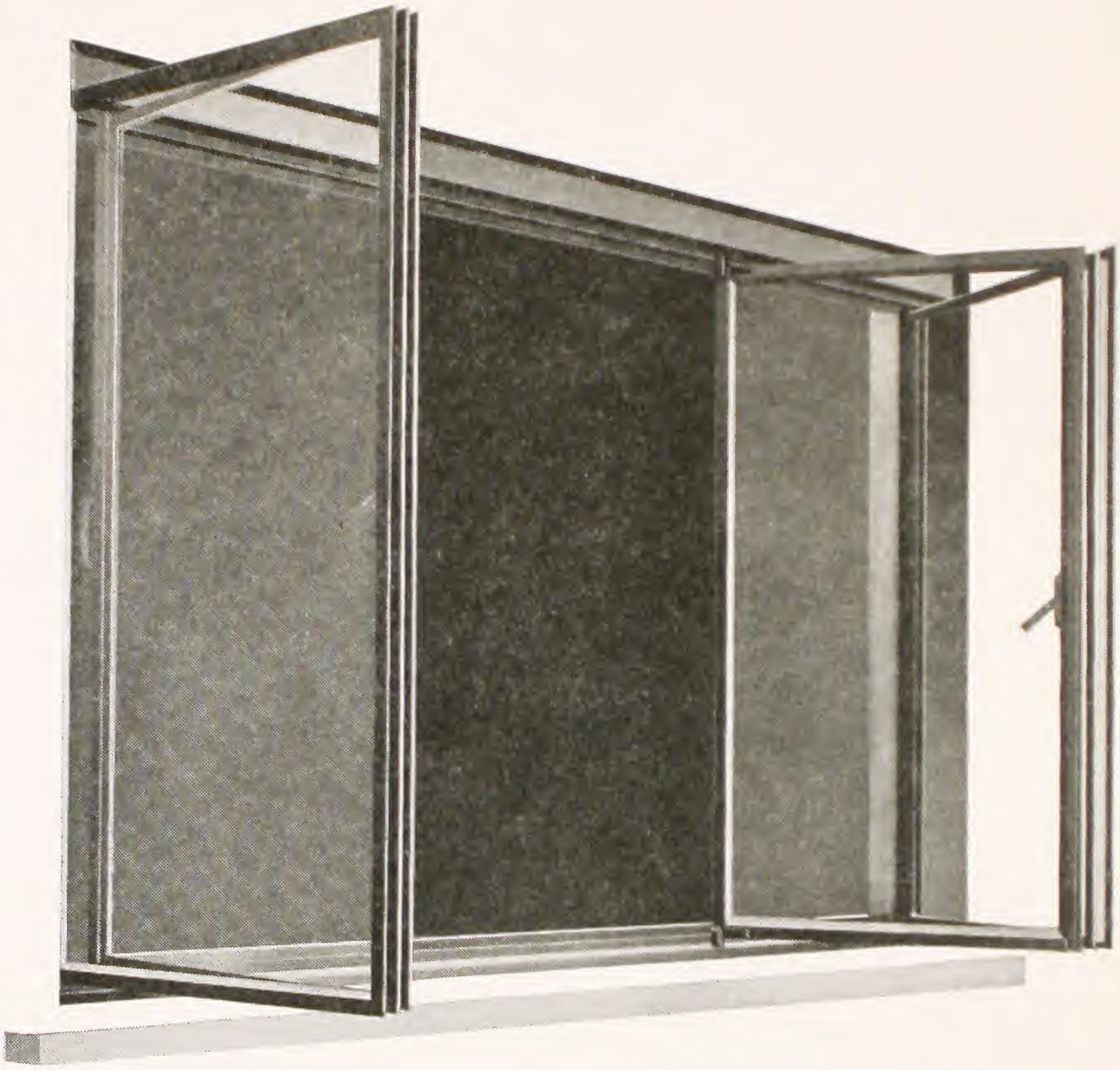


BALANCE WINDOWS

Crittall BALANCE windows are normally supplied with ring friction centres which hold the coupled ventilators open in any required position without needing a stay. The bottom coupled vent is fitted with a special cill catch which can be operated easily with one hand (see page 106), and there is a bow-handle for adjusting the degree of ventilation when the window is open. Balance windows can be coupled with a steel transome to any kind of ordinary ventilator at head and cill; and it is also possible to have a pivoted bottom hung vent at head without the use of a transome, the upper coupled H.C.H. vent closing against the bottom bar of the pivoted bottom hung vent above it. This construction enables all sight lines to be kept the same width. Limits for sizes of balance windows are given on page 11.



CRITTALL SLIDING –



Crittall sliding-folding windows can be made as simple units to fill openings up to 20′ wide and 8′ high. Full size details of construction are given overleaf, showing both the window alone, and in conjunction with fanlight and sublight.

DETAILS OVERLEAF

FOLDING WINDOWS

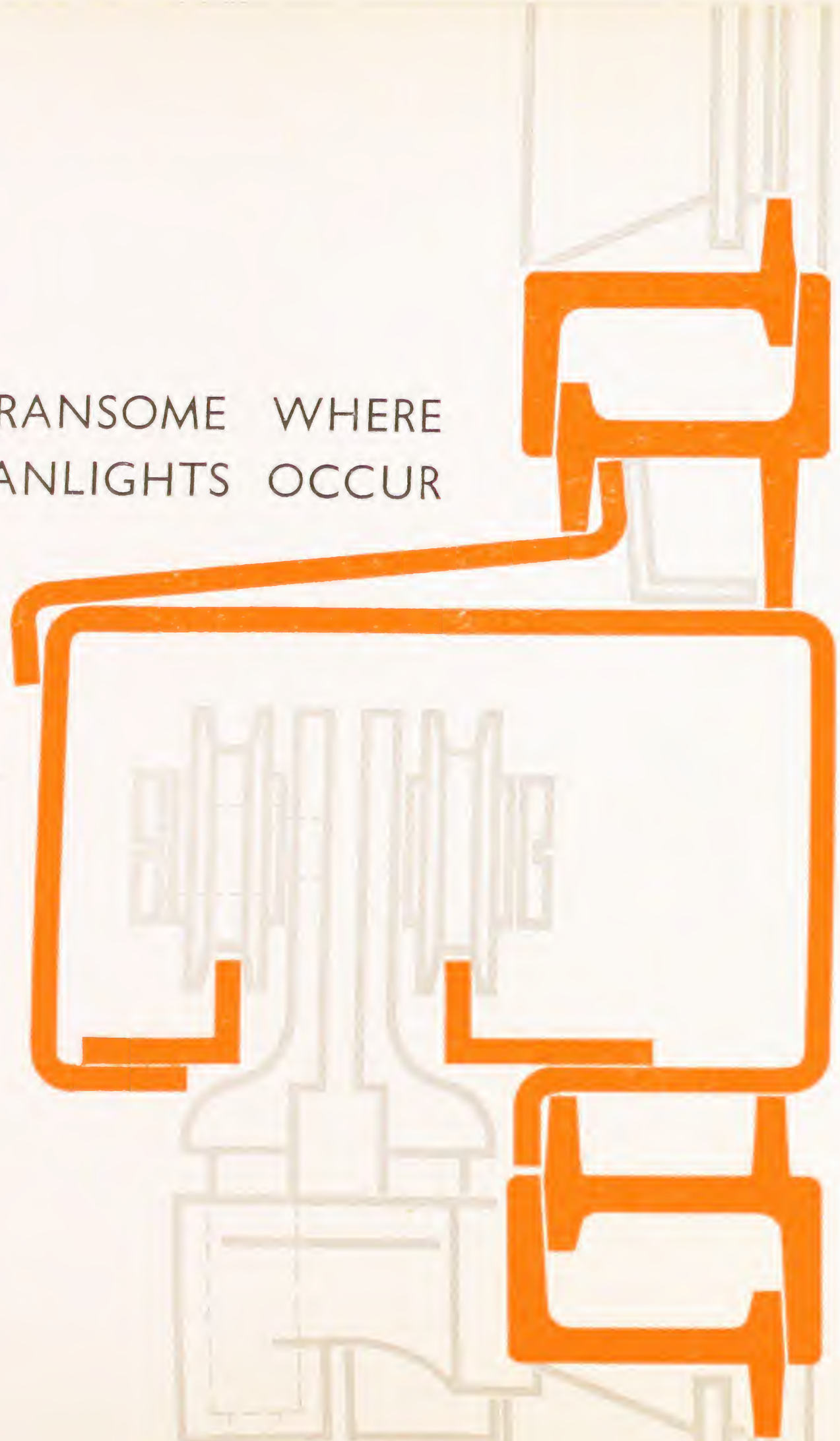
The head track consists of pressed steel boxing and angle runners; the cill track is of solid bronze open at the ends and pierced with holes for drainage.

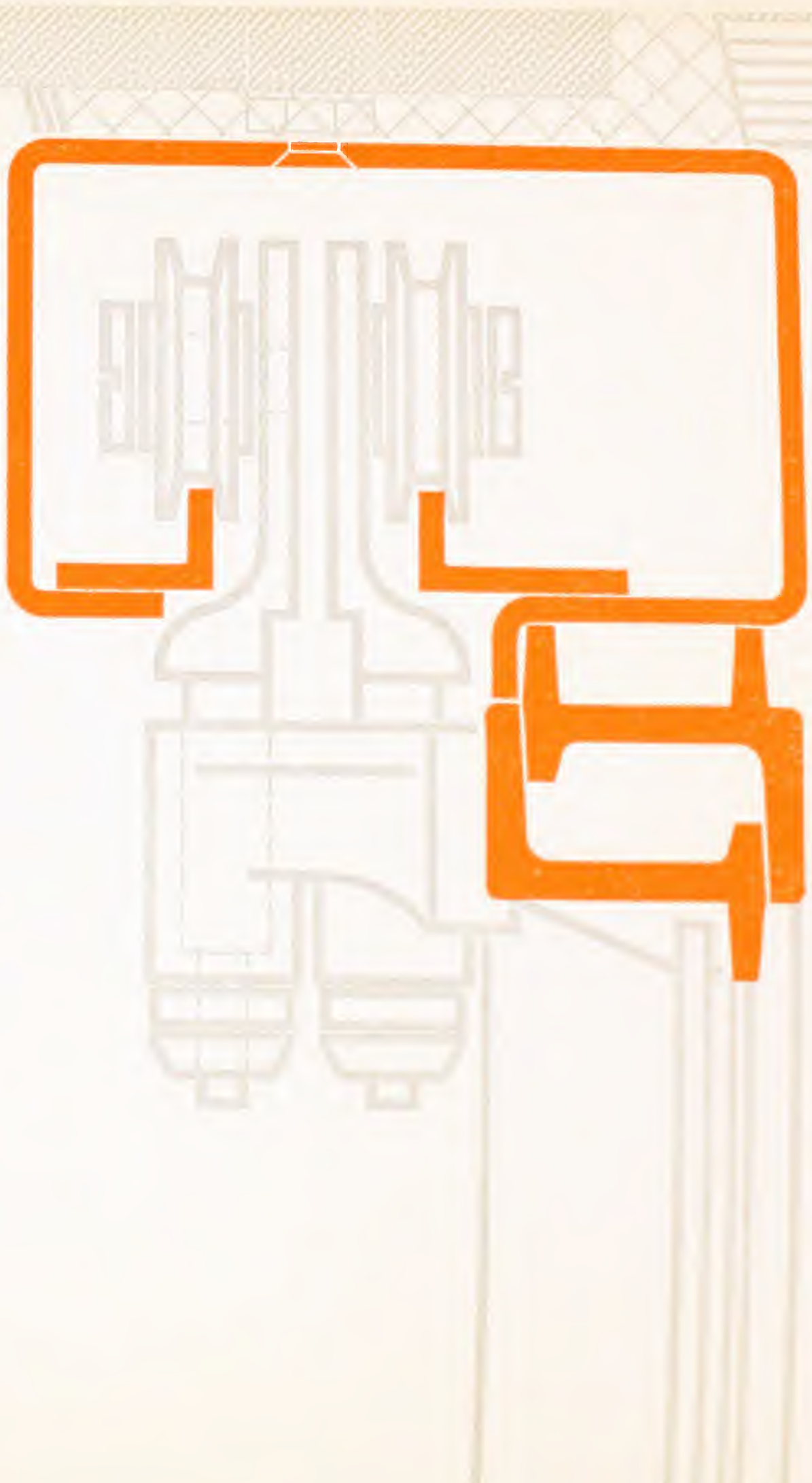
There are espagniolette bolts at each breaking rail and bow handles at the central meeting rail.

When Crittall sliding-folding windows are fitted without alternative ventilation, such as fanlight or sublight or another casement in the room, a special locking device can be fitted at cill which holds the sliding leaves securely in a slighty open position, enough for night ventilation purposes.

It is important to avoid having one of the sliding leaves swinging free.

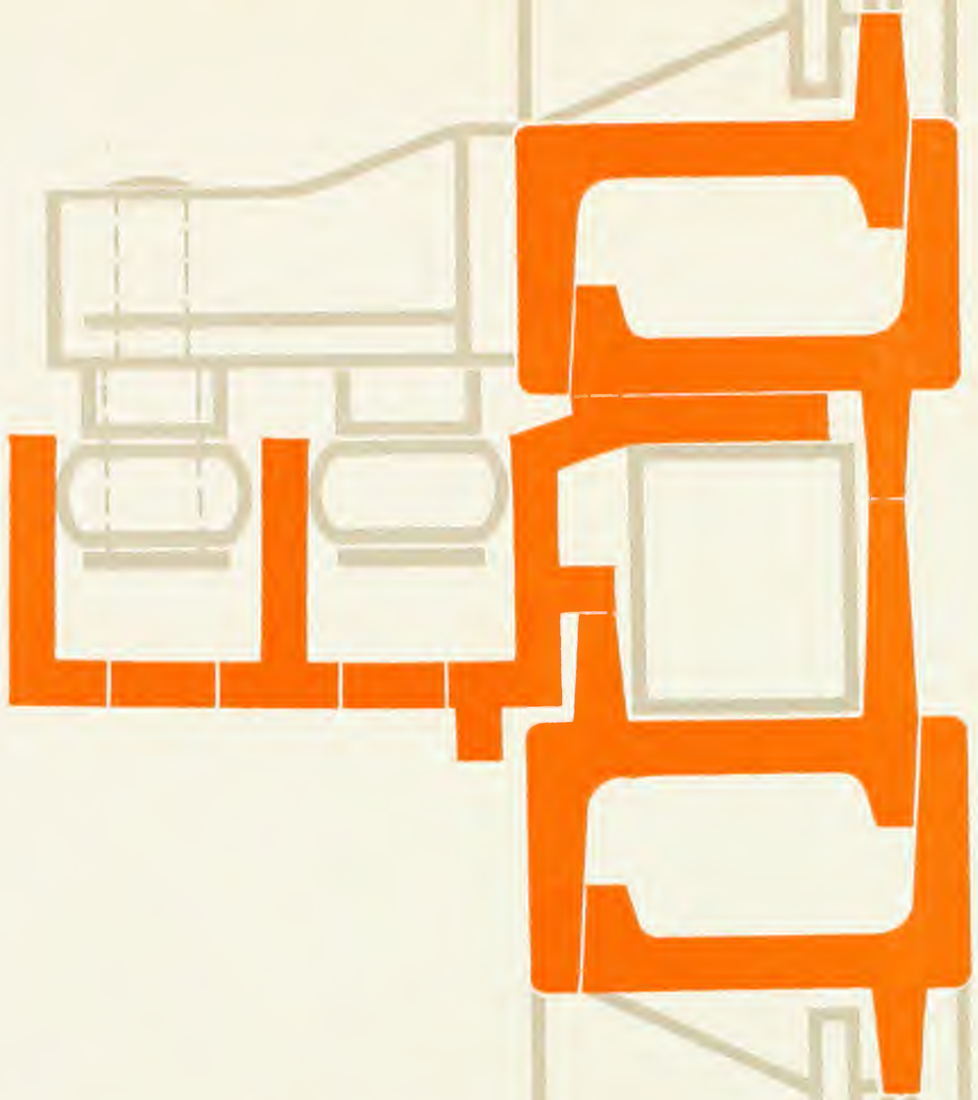
TRANSOME WHERE
FANLIGHTS OCCUR





SLIDING–FOLDING

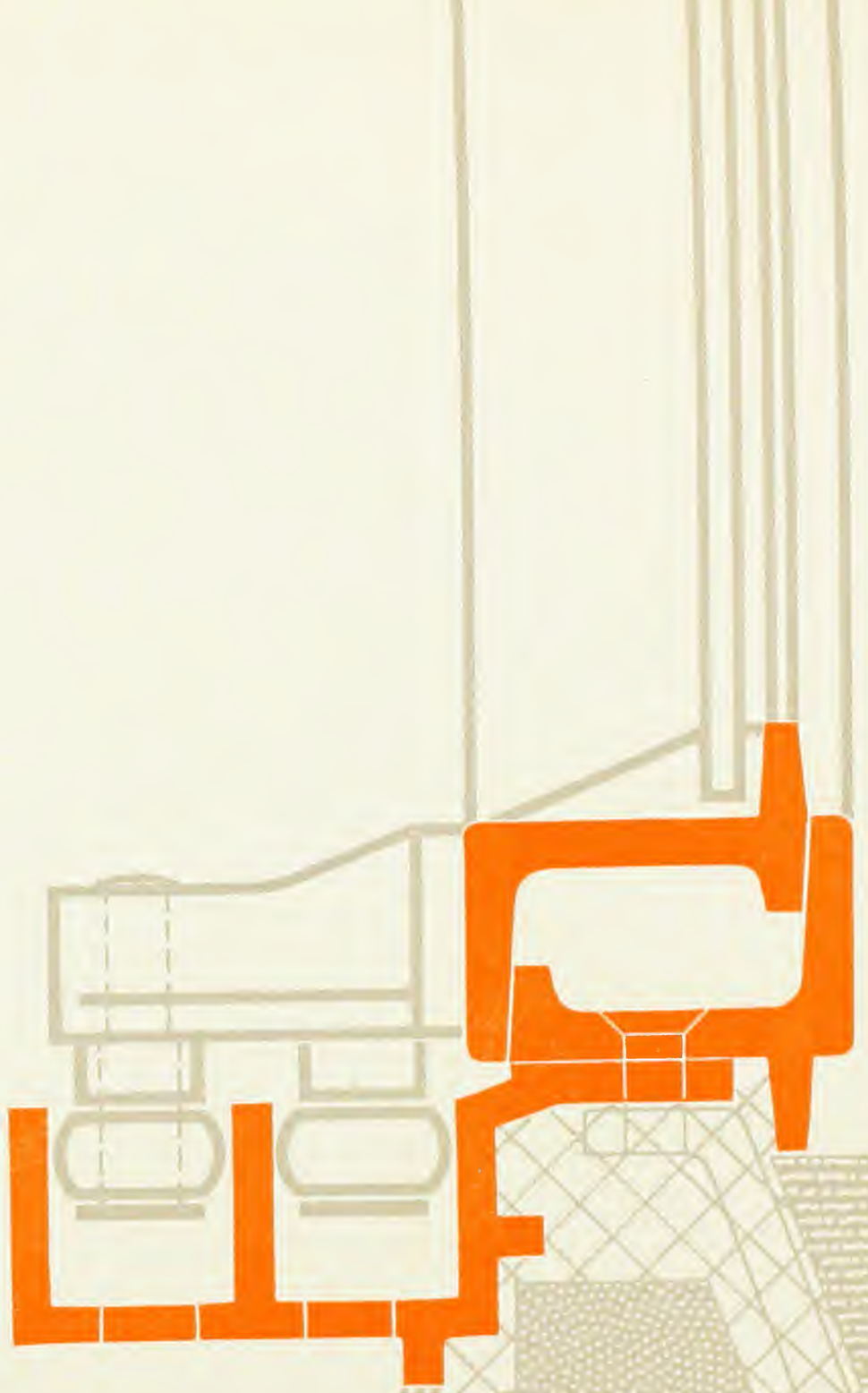
WINDOW DETAILS



OUTSIDE

TRANSOME WHERE
SUB-LIGHTS OCCUR

BRONZE CILL TRACK
No. 1035

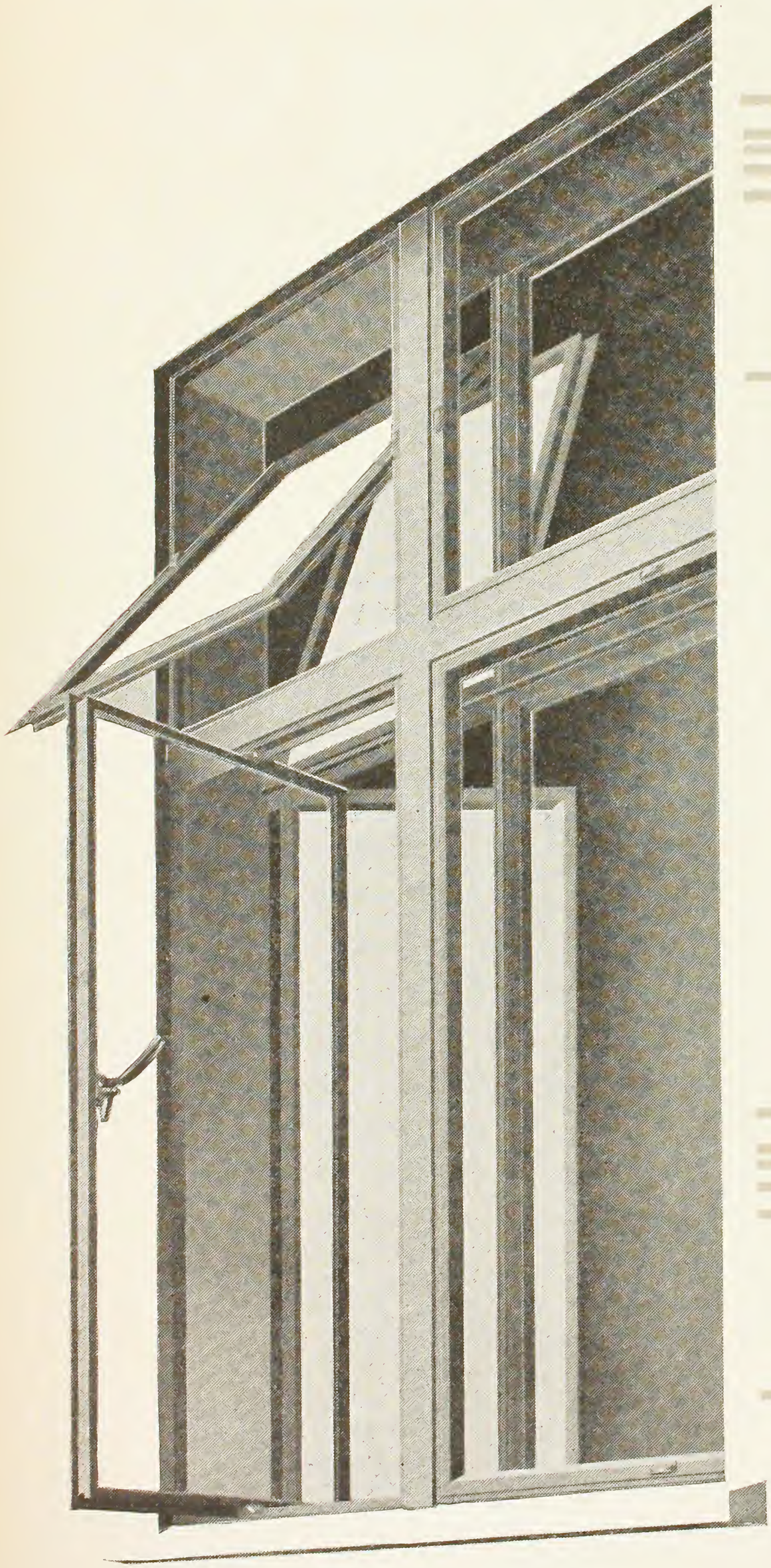


This is an example of double window construction. The outer casements, pivoted to be easily cleanable, open partially through the slightly larger inner set, which themselves open inwards. Where the detail of work does not allow larger casements on the inside, the outer set may be hung to open entirely outwards; in such cases the inner set are sometimes made to slide horizontally.

As a noise-excluder the double window is preferable to the double-glazed window on account of the greater air space between the panes.

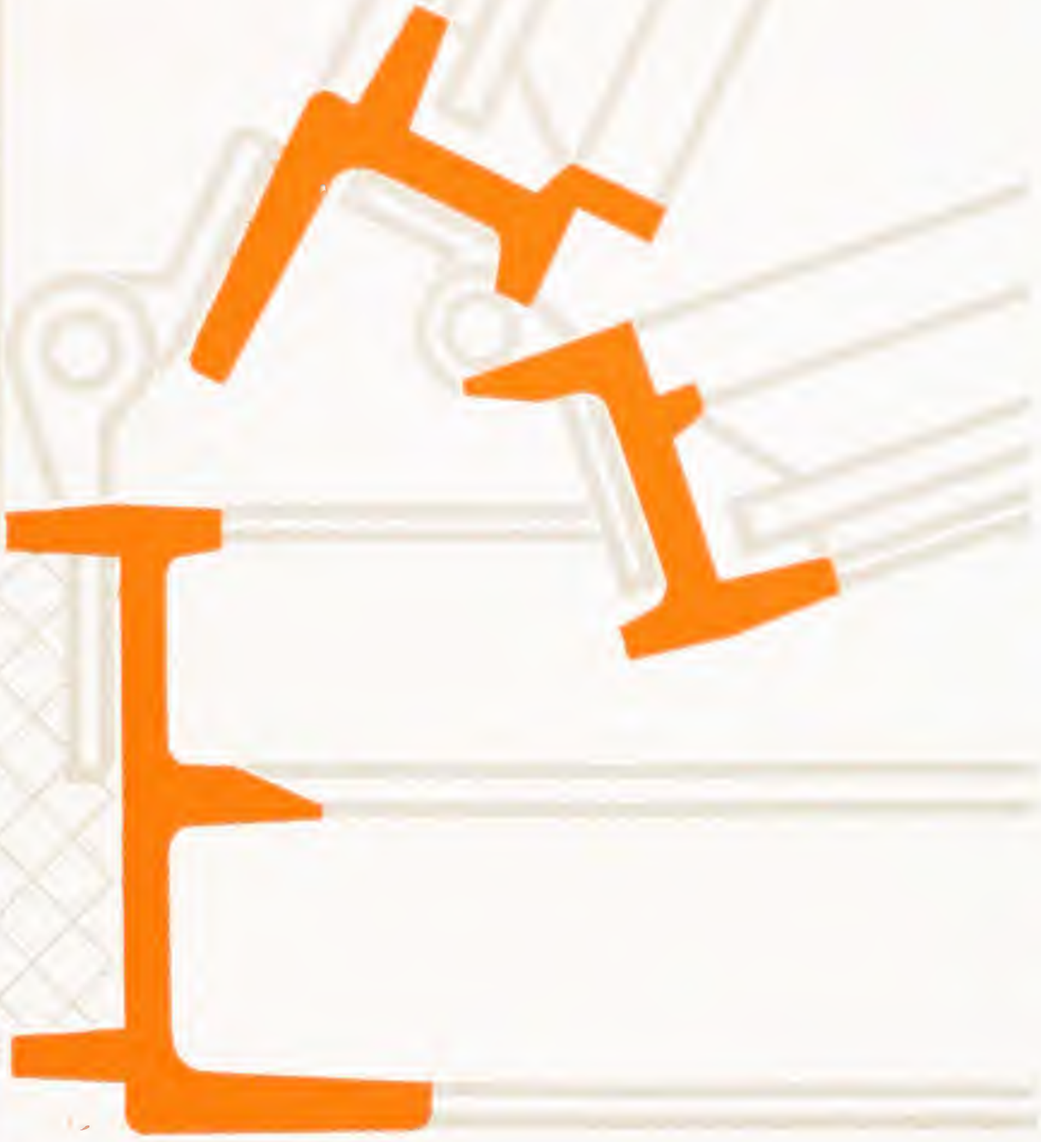
OUTSIDE

DOUBLE WINDOWS



JAMB

OUTSIDE



OUTSIDE

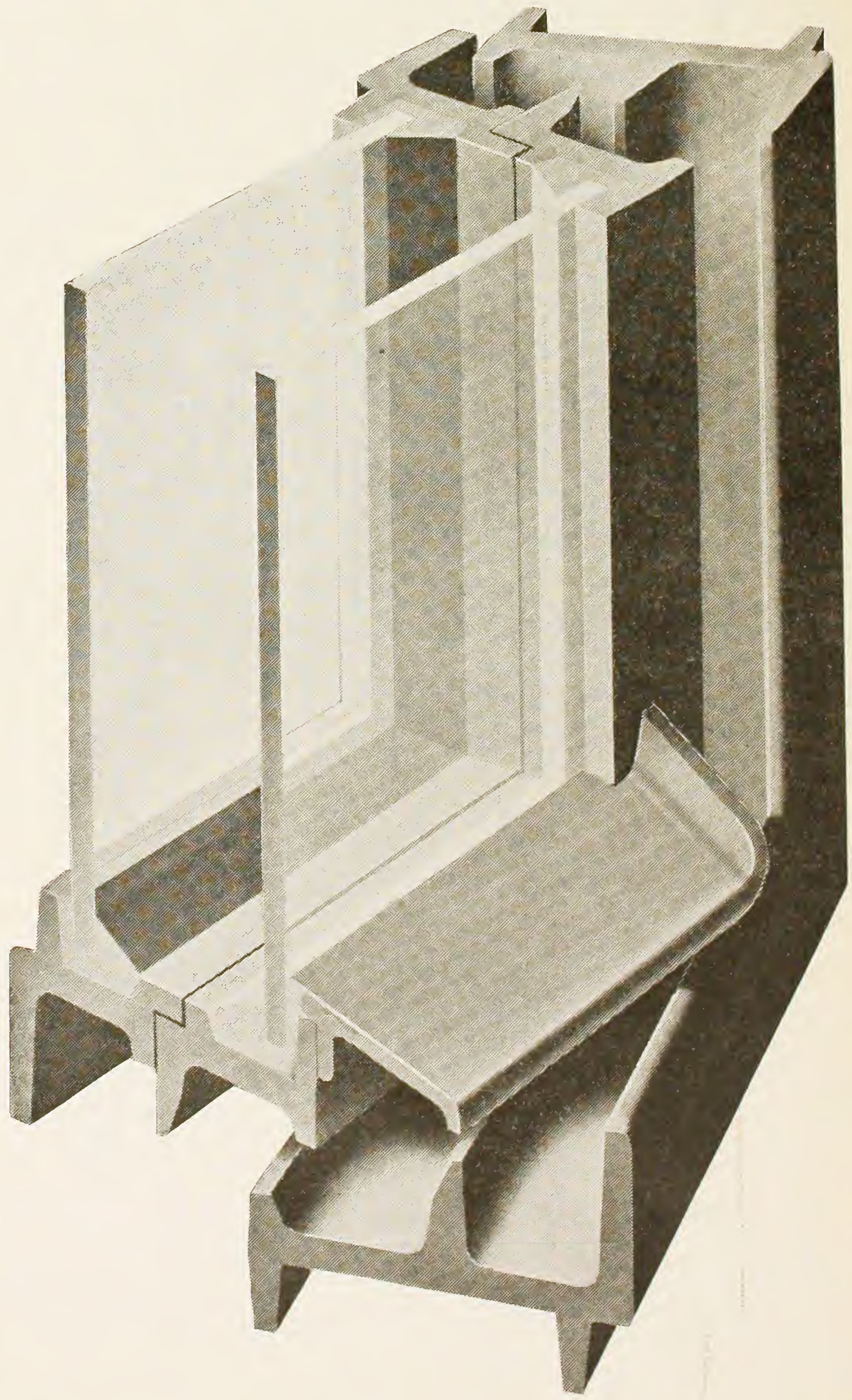
DOUBLE GLAZED WINDOWS

Crittall double-glazed windows provide a considerable degree of insulation against heat, cold and noise, and at the same time present perhaps the neatest solution of the problem of providing insulating windows which will open and close easily and can be easily cleaned both outside and between the glass.

All kinds of ordinary ventilators can be made in this double-glazed construction, the weight of section varying according to the size of the units, and composite windows can be formed by coupling units with steel mullions and transomes.

In order that they may be cleaned entirely from inside, double-glazed windows are nearly always made either pivoted, or side-hung opening inwards. All the ordinary types of casement fittings can be applied.

If it should be essential for double-glazed windows to open outwards they can be so supplied, with the addition of projecting hinges to enable the outside face of the outer glass to be cleaned from inside.

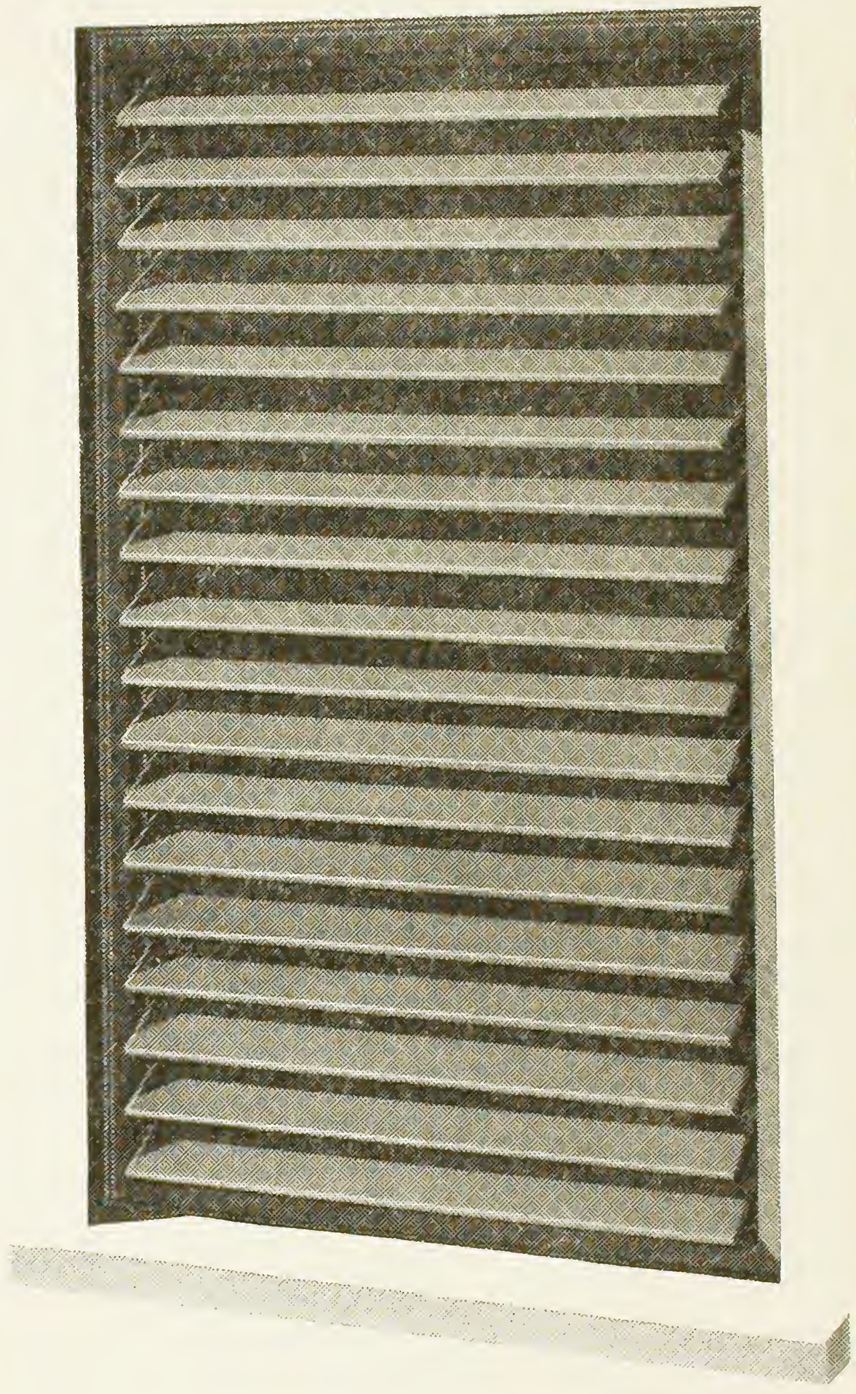


FLYSCREENS

The Crittall Removable Flyscreen for outward opening side-hung and top-hung casements consists of one continuous sheet of 16 mesh copper wire gauze stretched and secured to a metal frame of special section which is applied to the fixed frame of the casement. This precludes the use of normal casement fittings, and instead, special enclosed handle and sliding stay are fixed, which operate through slots in the flyscreen frame. The casement may thus remain securely screened while being opened and closed.

The Removable Flyscreen for inward opening casements is similar, but is fixed to the outside of the fixed frame.

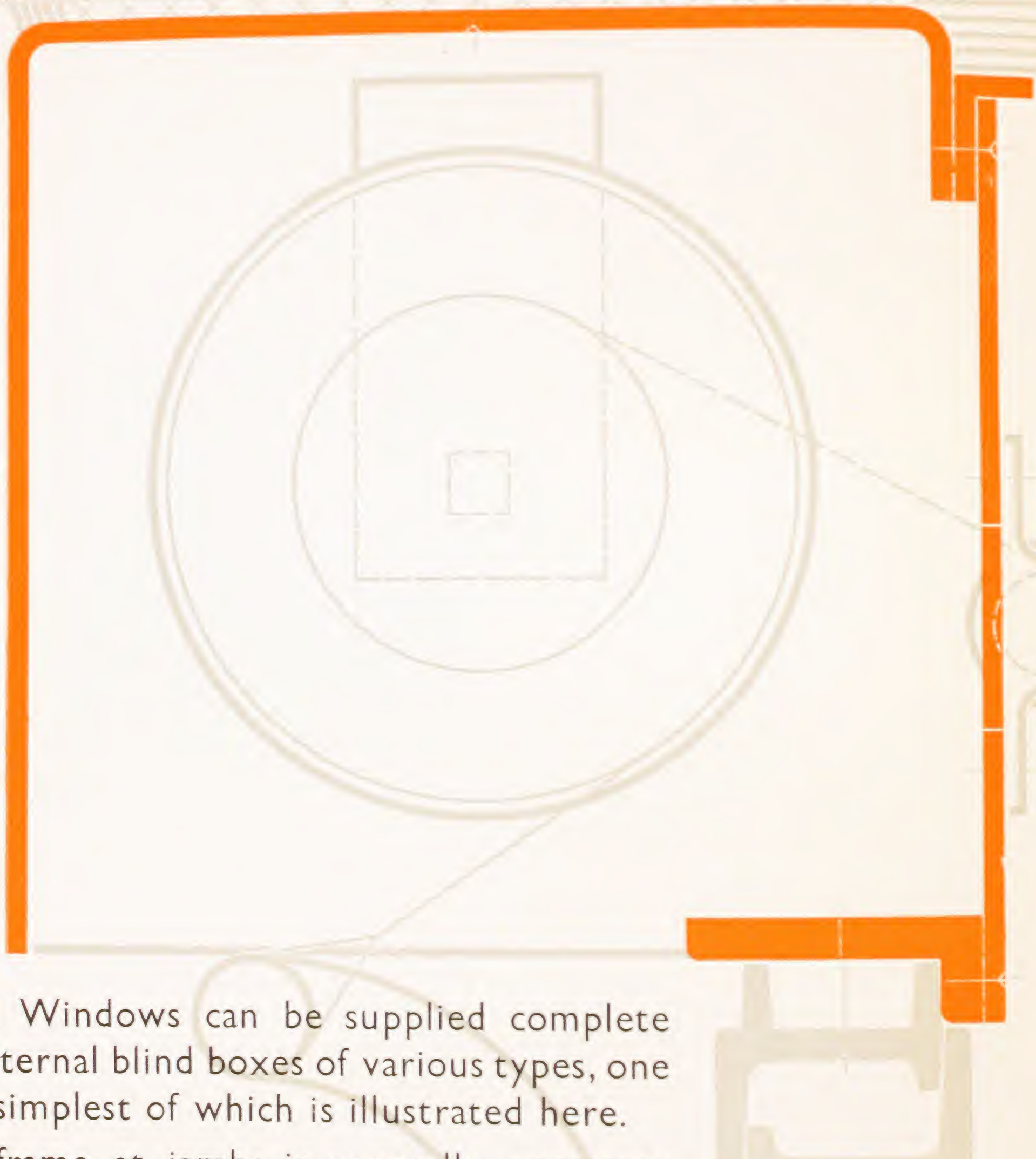
LOUVRE WINDOWS



Louvre blades can be of glass, metal or wood and can be fitted into opening windows or fixed lights.

The illustration shows a window with movable louvre blades of teak carried on specially designed pressed steel brackets. The blades are operated by a finger grip attached to the rod which connects the set of brackets at one jamb.

EXTERNAL BLIND BOXES



Crittall Windows can be supplied complete with external blind boxes of various types, one of the simplest of which is illustrated here.

A sub-frame at jambs is generally necessary to provide a fixing for the supporting arms of the blind, and this can consist of a channel section which would form a recess for the blind arms when not in use.

CASEMENT DOORS

including various cill details,
sliding-folding doors and
swing doors.

CRITTALL CASEMENT

OUTSIDE

DOUBLE PLATE PANEL

A

B

Crittall casement doors owe their rigidity and freedom from whipiness to their double panelled welded kicking plates, which should never be entirely omitted even though reduced to a few inches in depth.

With this important exception construction generally follows that of windows; but since doors are a means

DOOR CONSTRUCTION

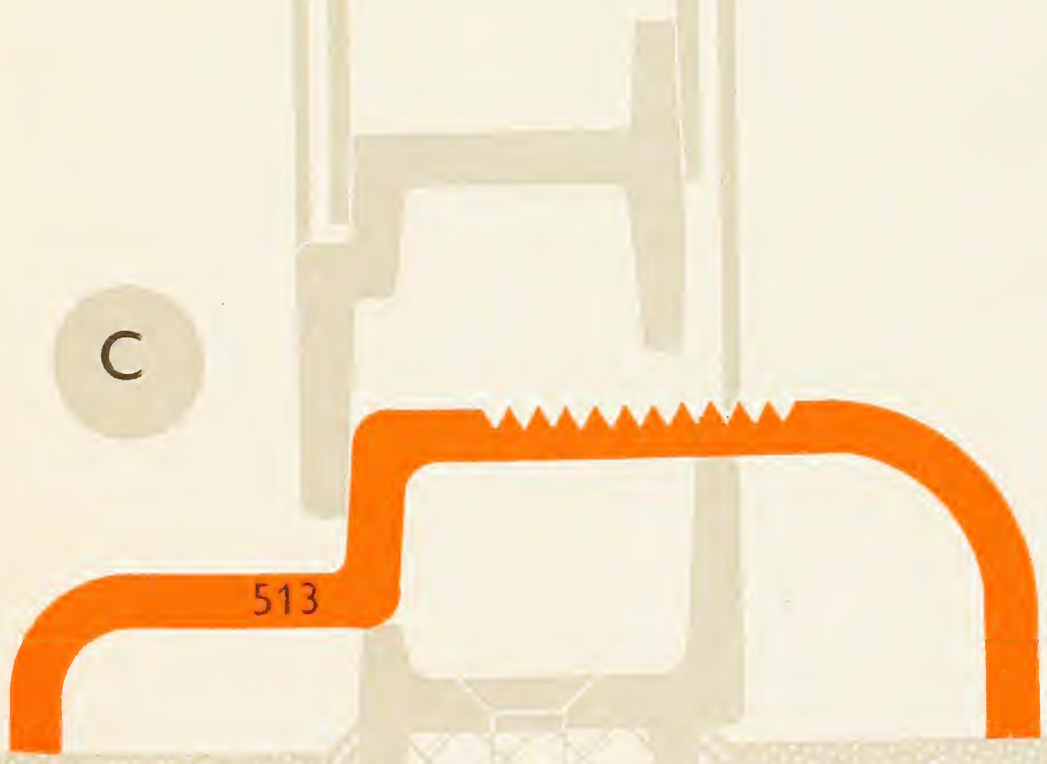
of passage special attention has to be given to cills and to their position in regard to exposure to weather. Of the examples A to H,

A is most suitable for normal use.

B. Bronze cill plate which avoids an upstanding bar when the flooring cannot be laid as in detail A.

C. Bronze cill plate which is, owing to its stoutness, especially suitable for doorways expected to receive more than normal use.

D. The application of a steel or bronze angle as a cill bar is usual where there is a definite outside step.



CASEMENT DOOR CILLS

E. The bronze cill plate shown in this detail is especially useful in buildings where small-wheeled traffic is likely to occur, as it gives the minimum of rise with a definite weather check.

F. Flush cill bar for use with internal doors only.

OUTSIDE

LS

CASEMENT DOOR CILLS

Doors can, of course, be made to open inwards, but are not recommended unless in well protected positions, such as under a porch or verandah, for which cill details G and H are suitable. It is also possible to adapt the bronze cill plates shown in details B, C and E to inward opening doors.

G

H

CRITTALL CASEMENT

STEEL PROJECTING HINGE

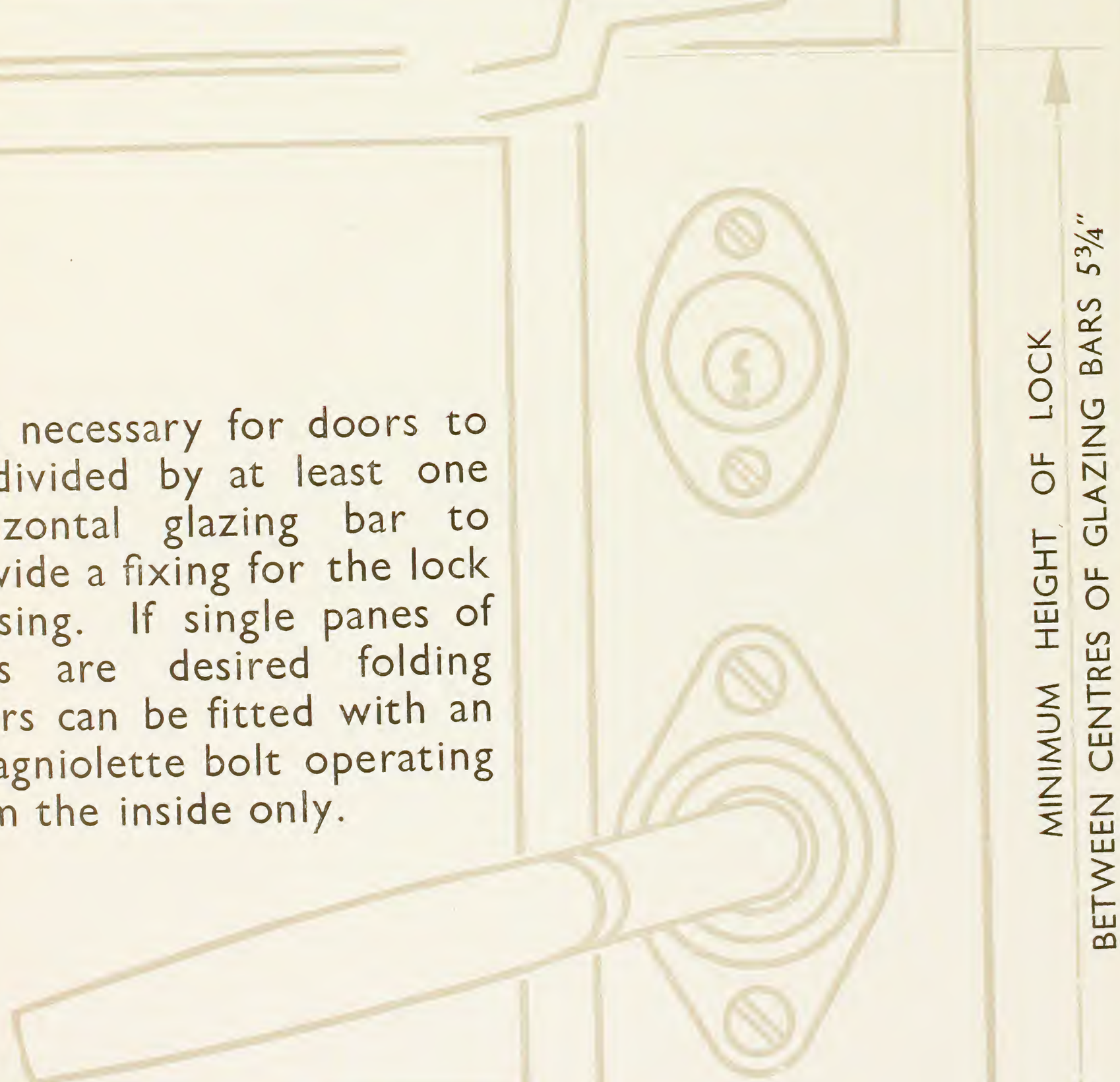
Casement doors are made folding or single, and can be fitted with projecting bronze or steel hinges to enable them to fold right back against the wall.

All Crittall casement doors are provided with a Yale cylinder two-bolt mortice lock and bronze lever handles. Short concealed bolts are fitted at head and cill on side-hung doors, and at head and cill of each leaf on folding doors. (see pages 112-113).

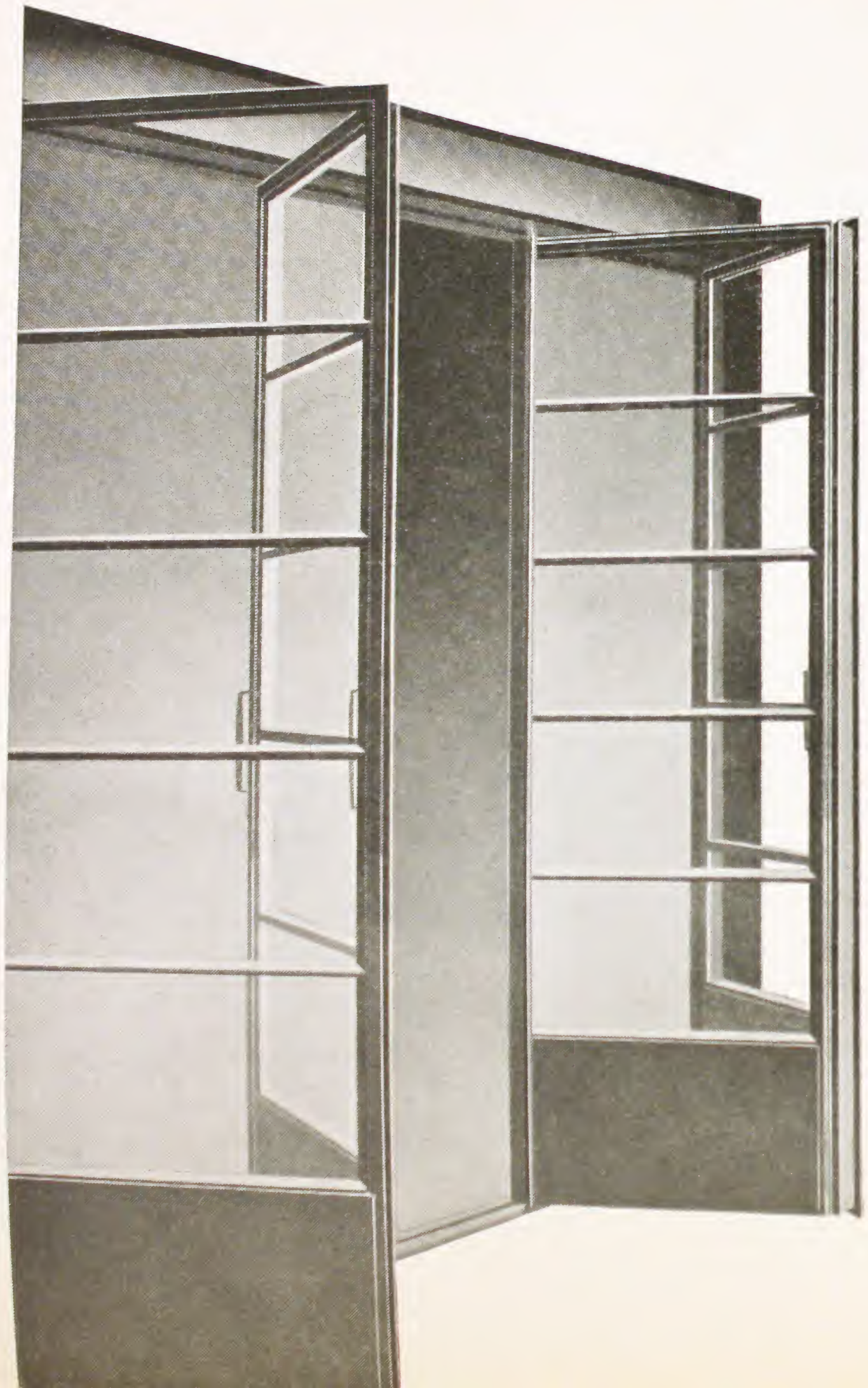
DOOR CONSTRUCTION

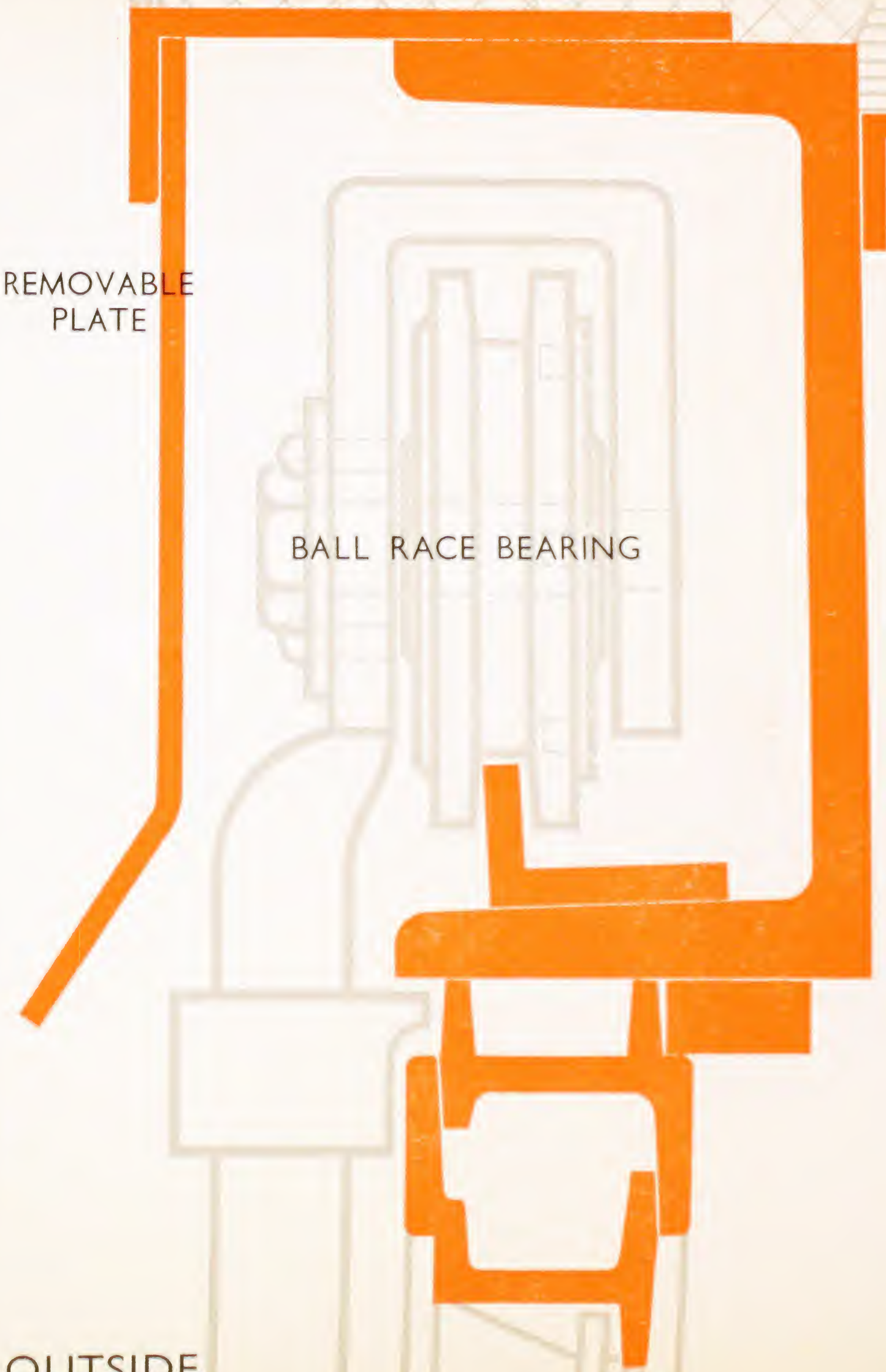
OUTSIDE

It is necessary for doors to be divided by at least one horizontal glazing bar to provide a fixing for the lock housing. If single panes of glass are desired folding doors can be fitted with an espagniolette bolt operating from the inside only.



MINIMUM HEIGHT OF LOCK
BETWEEN CENTRES OF GLAZING BARS 5¾"



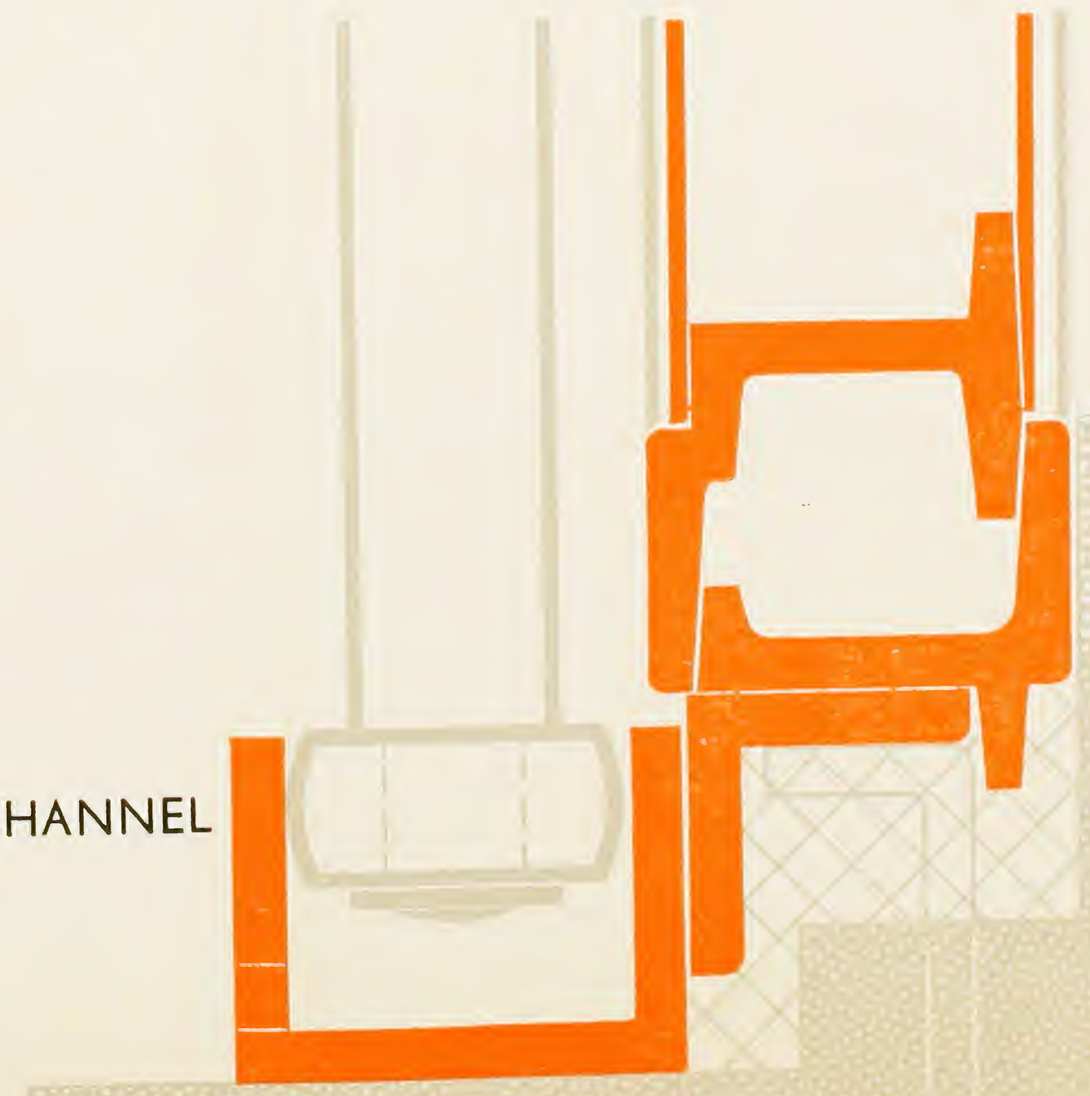

REMOVABLE
PLATE
BALL RACE BEARING
OUTSIDE

OUTSIDE

SLIDING - FOLDING DOORS

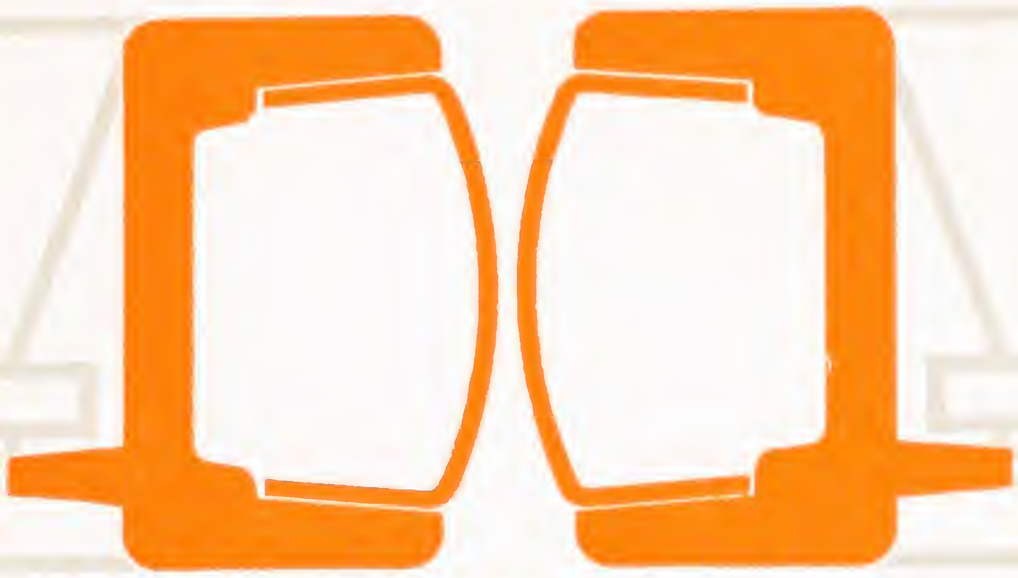
The construction of Sliding-Folding Doors differs somewhat from that of Sliding-Folding Windows on account of their size and the heavier duty they have to perform. They have a heavy channel at head and rod-butts to each pair of leaves.

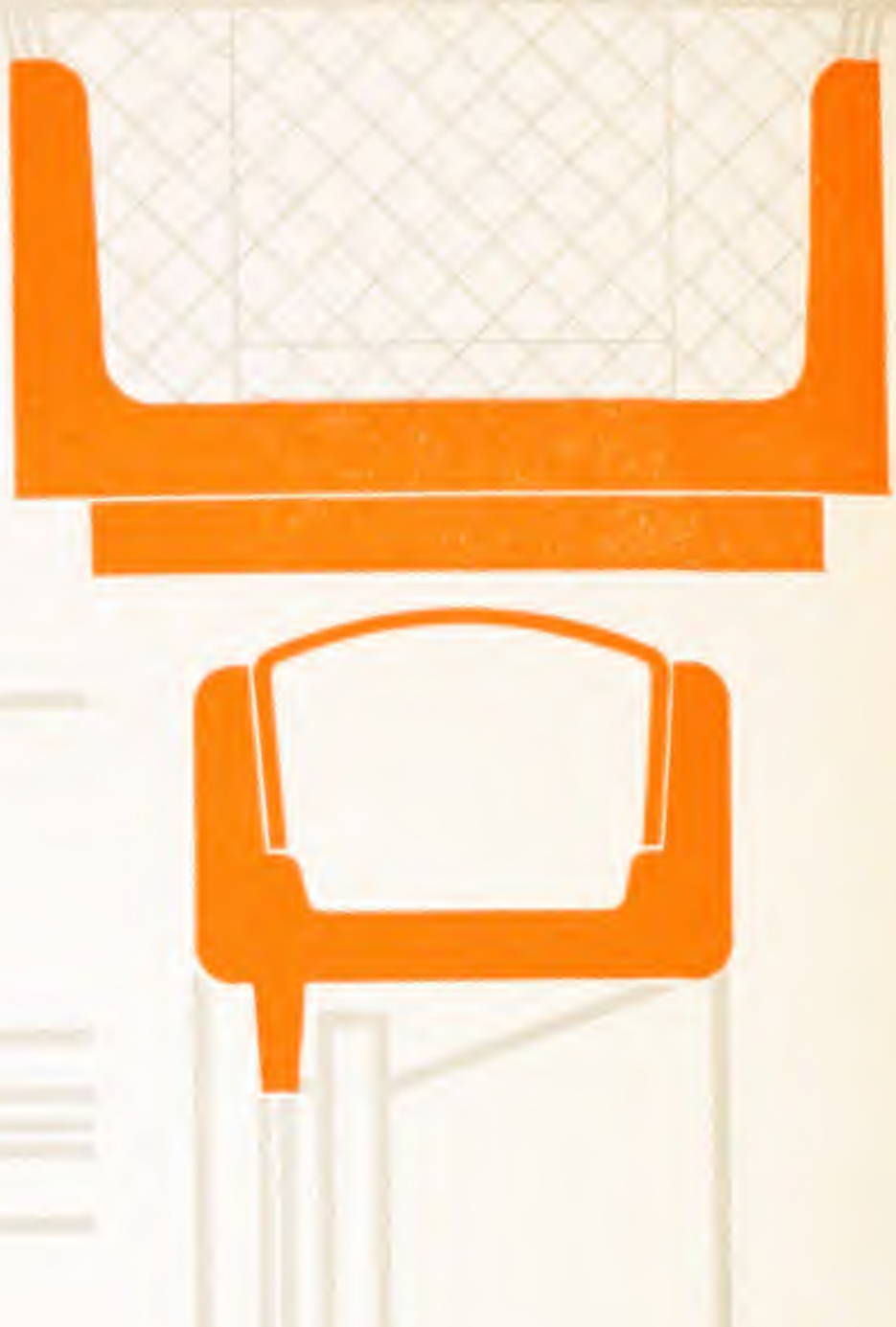
The full size detail shows typical construction for doors of normal size. These doors, can, if required, be made with tracks curved-on-plan, but the radius must be determined in regard to the number and width of the individual leaves which themselves are straight on plan.



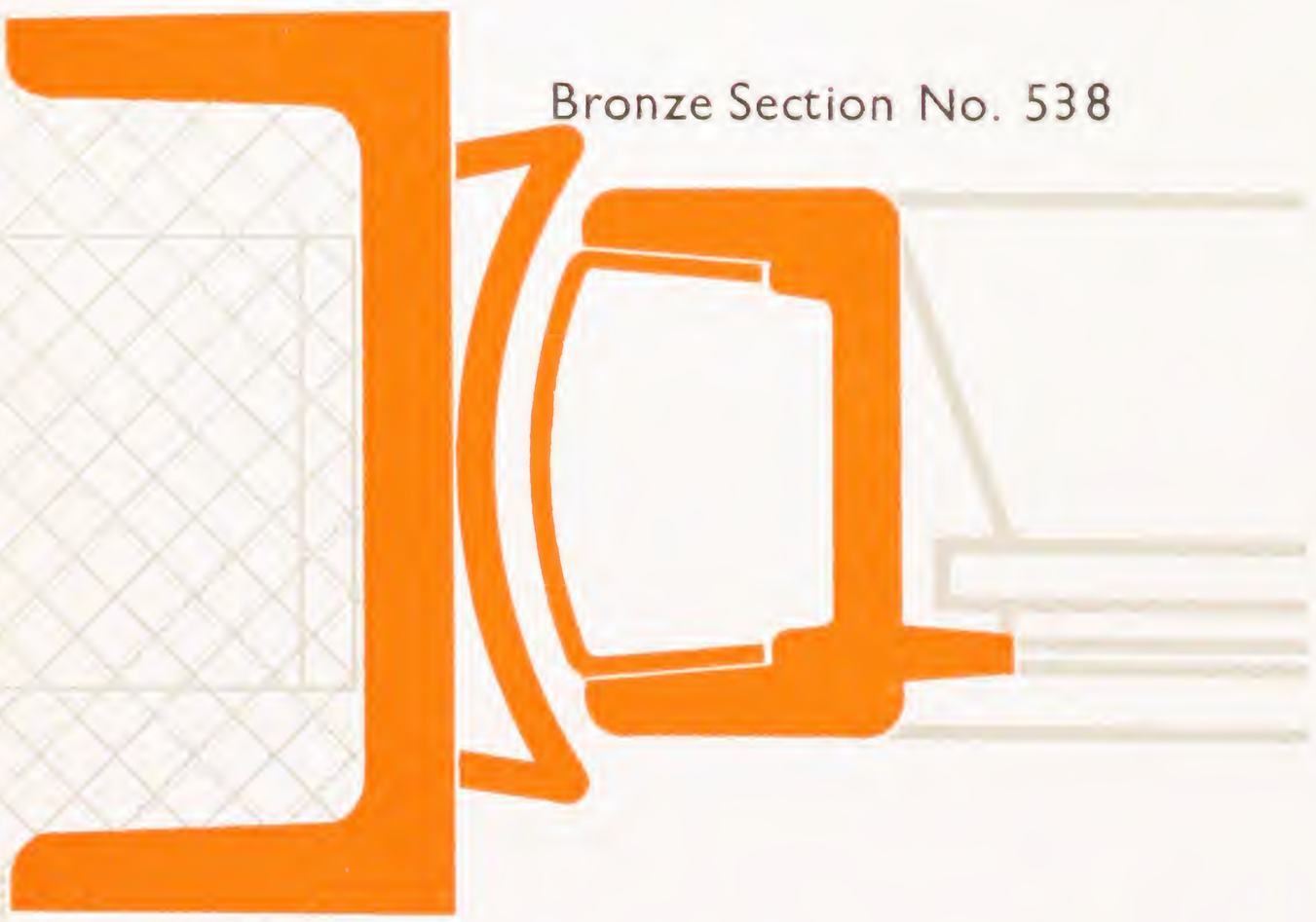
BRONZE CHANNEL

CLOSING RAIL

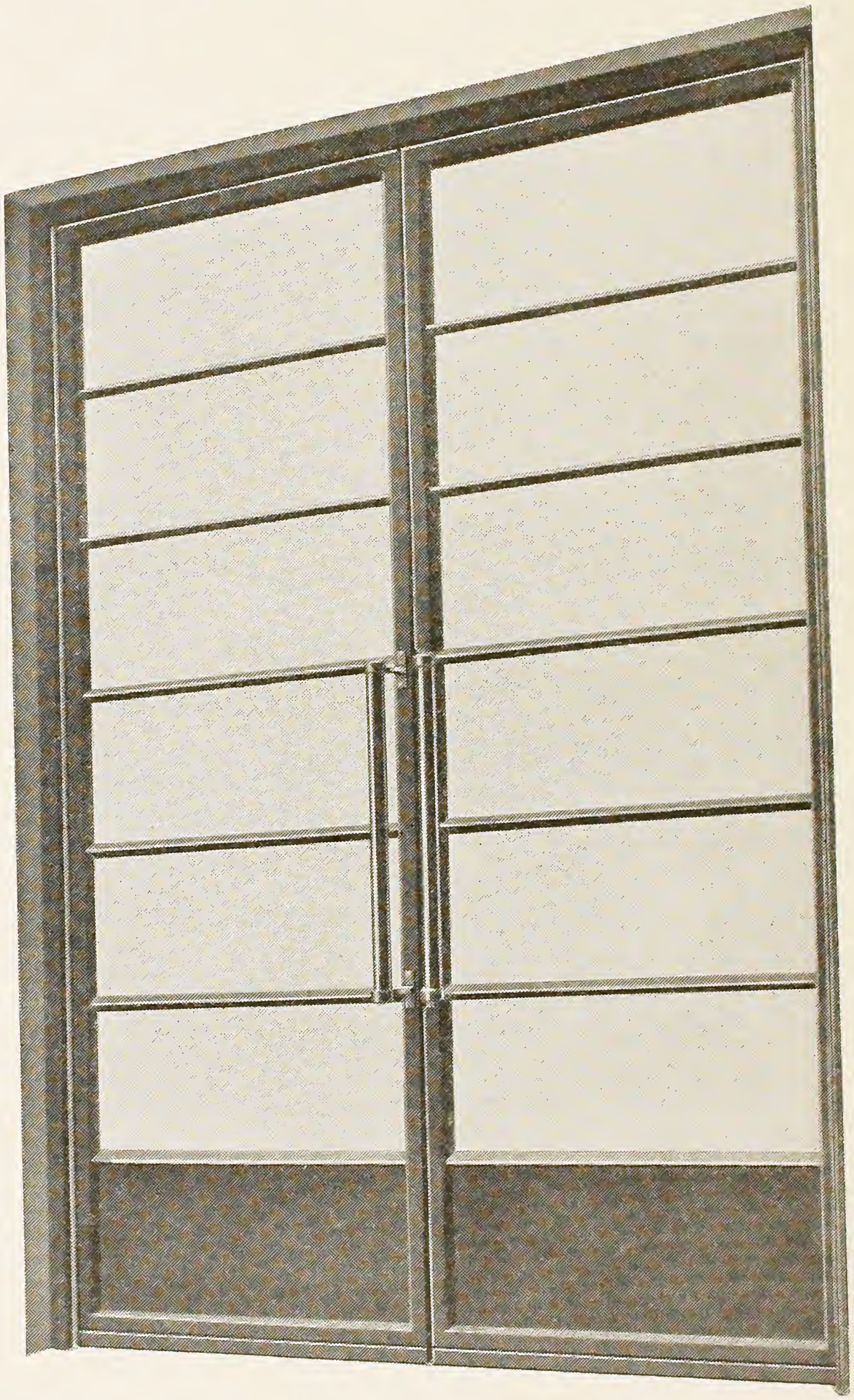




Bronze Section No. 538



DOUBLE ACTION SWING DOORS



The full size details show the construction of a typical pair of swing doors. The heavy channel frame is desirable, but if there is not room for it, the frame may be made from 3″ x ½″ steel flat bar. Double action swing doors are fitted with floor-springs for which a minimum space of 4″ below floor level is required. The type of bow handle in the illustration is shown full-size on page 115 together with an available alternative design.

CRITTALL SERVICE

No catalogue or series of catalogues can give all the technical information relating to the metal window industry; Crittall Representatives, therefore, are always available to discuss all kinds of window problems. It is only necessary to get into touch with one of the addresses given at the beginning of this book.

Detailed estimates for all classes of window work are of course supplied free, and are accompanied, where necessary, by complete drawings prepared in our different drawing offices, the services of which are always at the disposal of enquirers. We prefer ourselves to take the measurements of windows required on any job, and the responsibility for their fitting.

It is our aim to give a complete service in all that concerns the discussion, design, pricing, manufacture, delivery and fixing of metal windows of all kinds in all parts of the world, and we recognise that our obligations in regard to a Crittall window installation are not discharged until it is completely satisfactory.

Where we are allowed to carry out the actual fixing we are certain of a good job; but when this is not the case, and things need adjustment, we have a fleet of service vans which deals with all such matters.

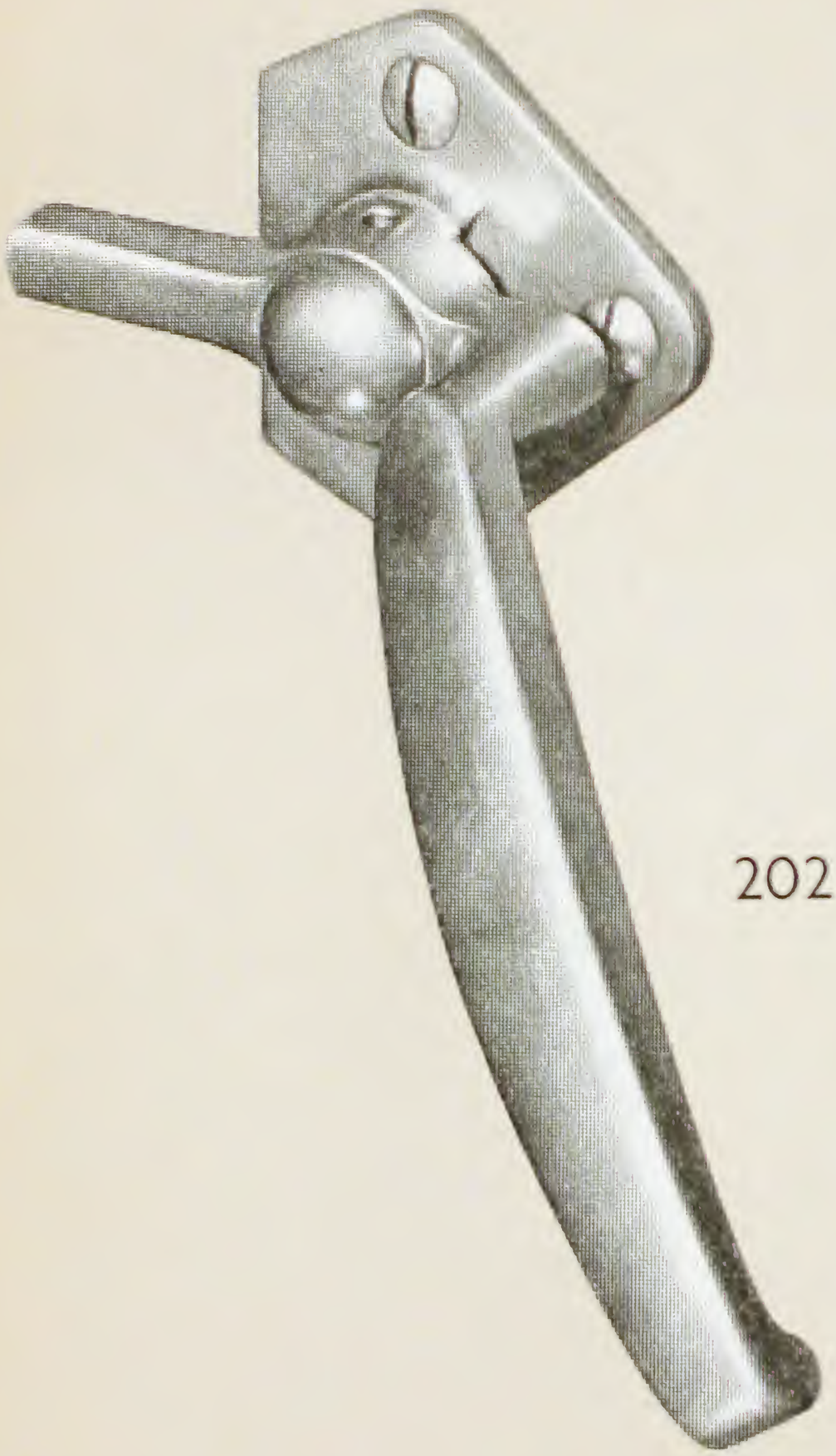
These mobile workshops are always available to ensure the complete efficiency of every Crittall installation.

BRONZE FITTINGS

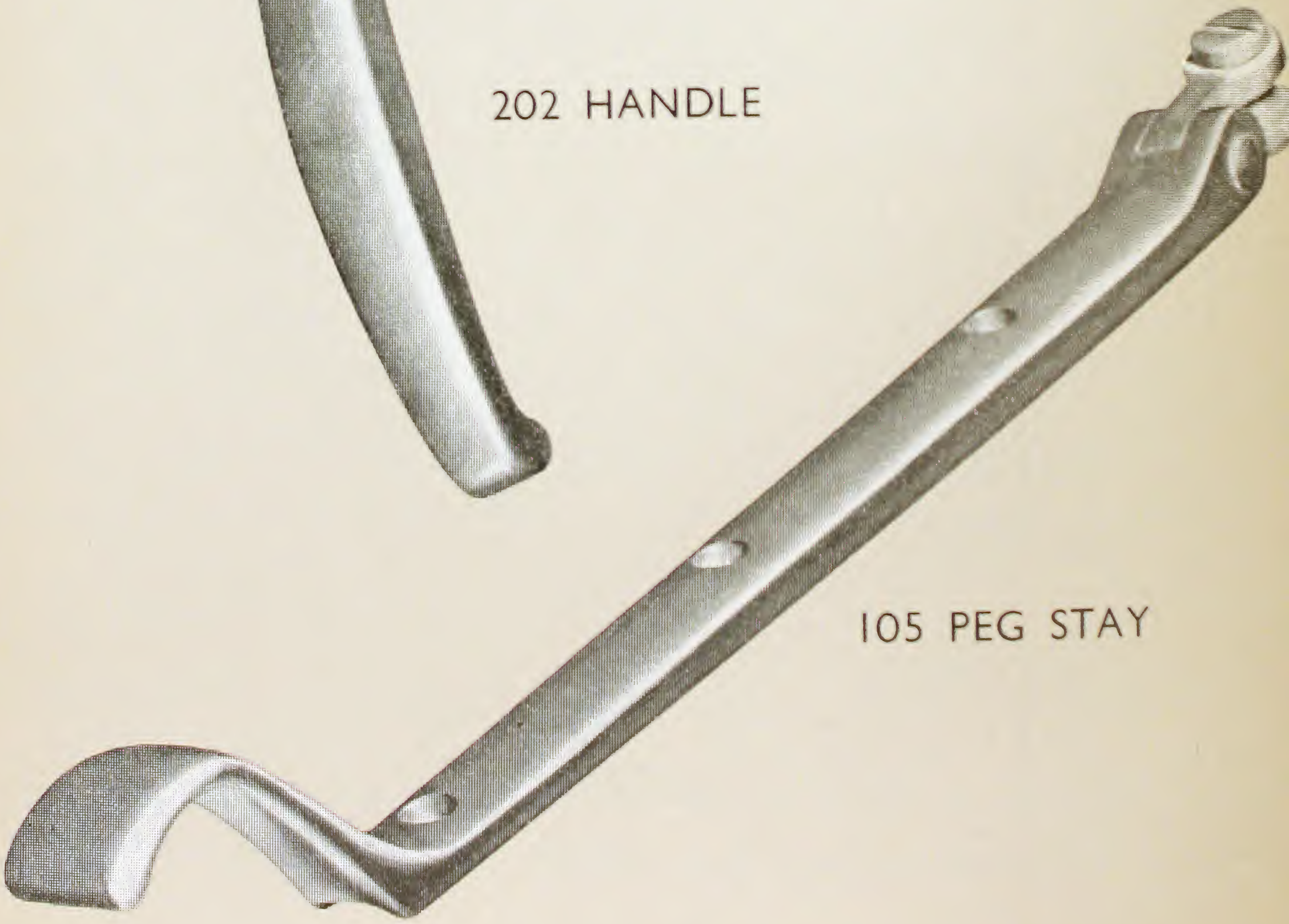
including illustrations and details of all the more usual kinds of casement fittings and gearing.

The halftone illustrations in the following pages are approximately full size, diagrams are full size and quarter full size.

CASEMENT HANDLES



202 HANDLE



105 PEG STAY

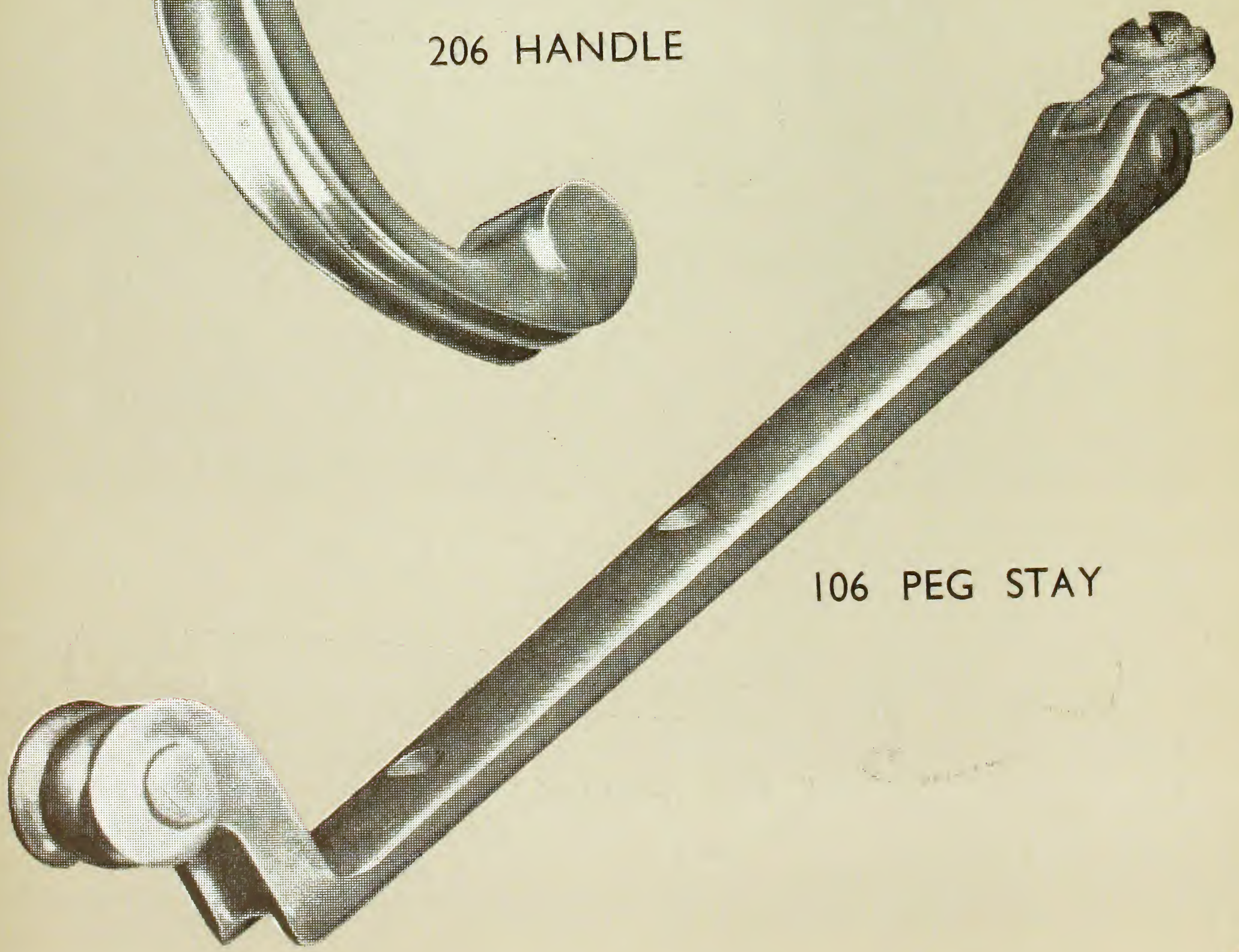
DLES

TAY

AND PEG STAYS

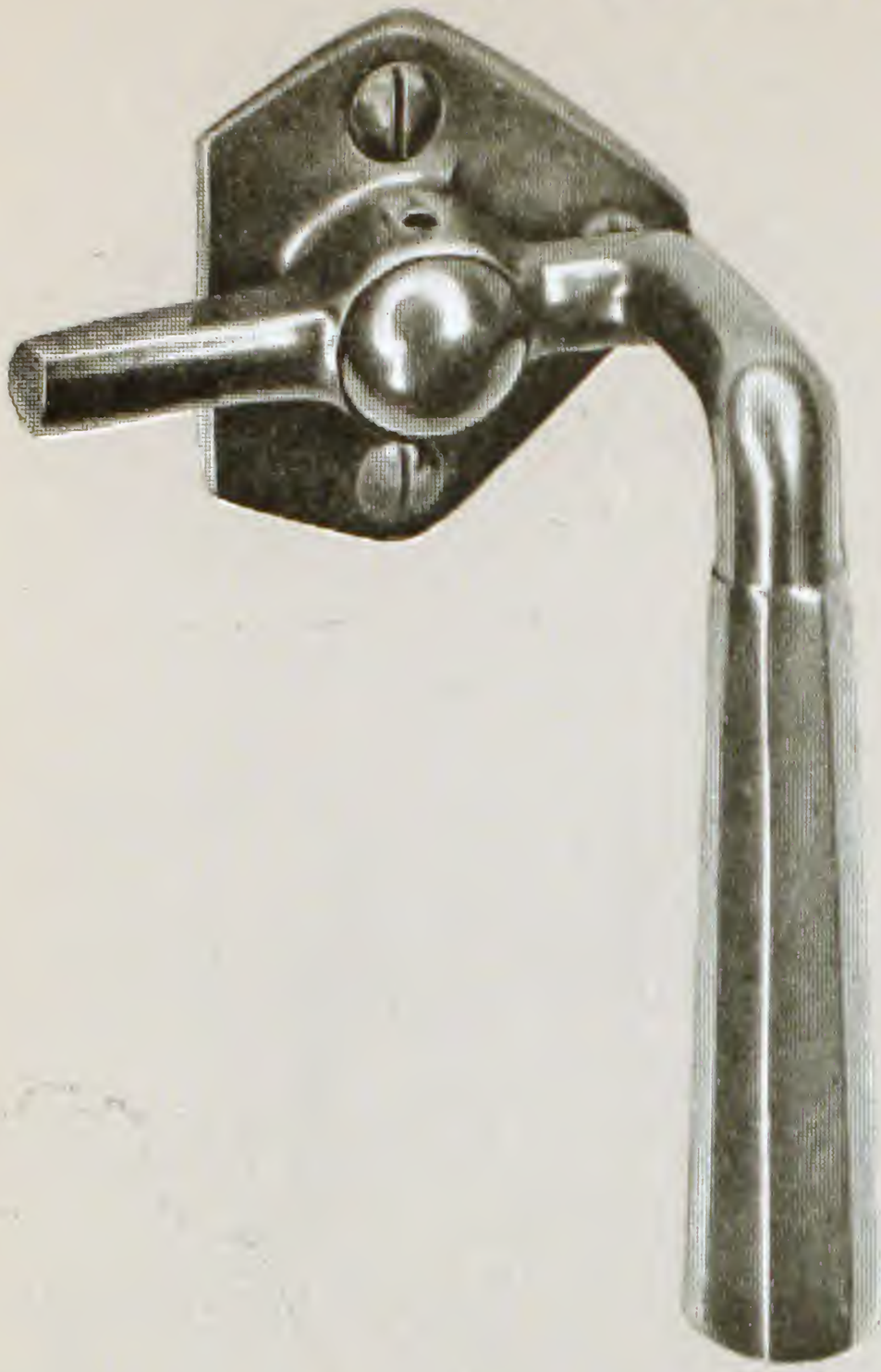
206 HANDLE

All Crittall Casement handles are constructed in the manner shown in the part sectional detail opposite. The coil spring ensures constant pressure.



106 PEG STAY

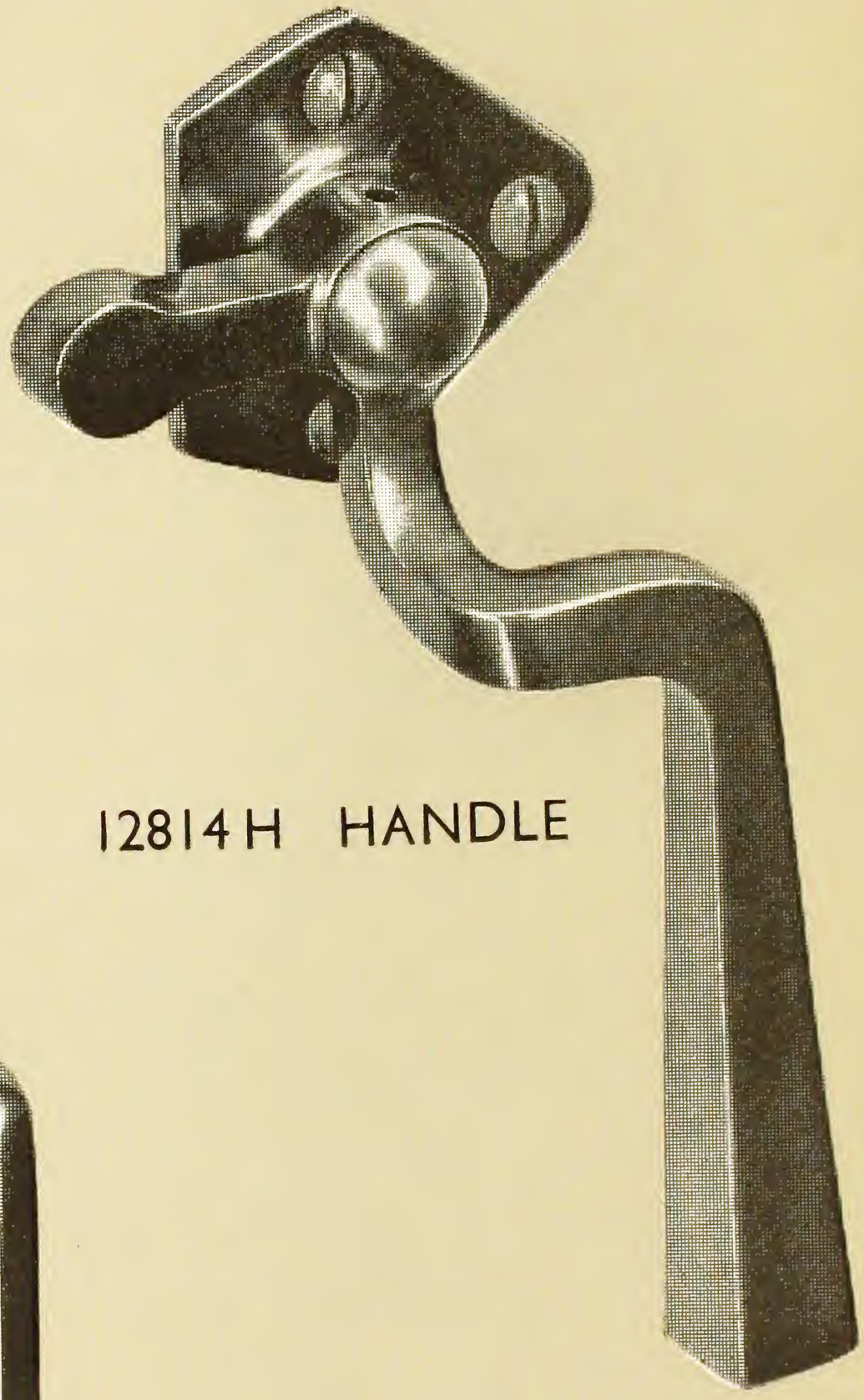
ALTERNATIVE CRITTALL



1263 H HANDLE

526 H HANDLE

CASEMENT HANDLES



12814 H HANDLE

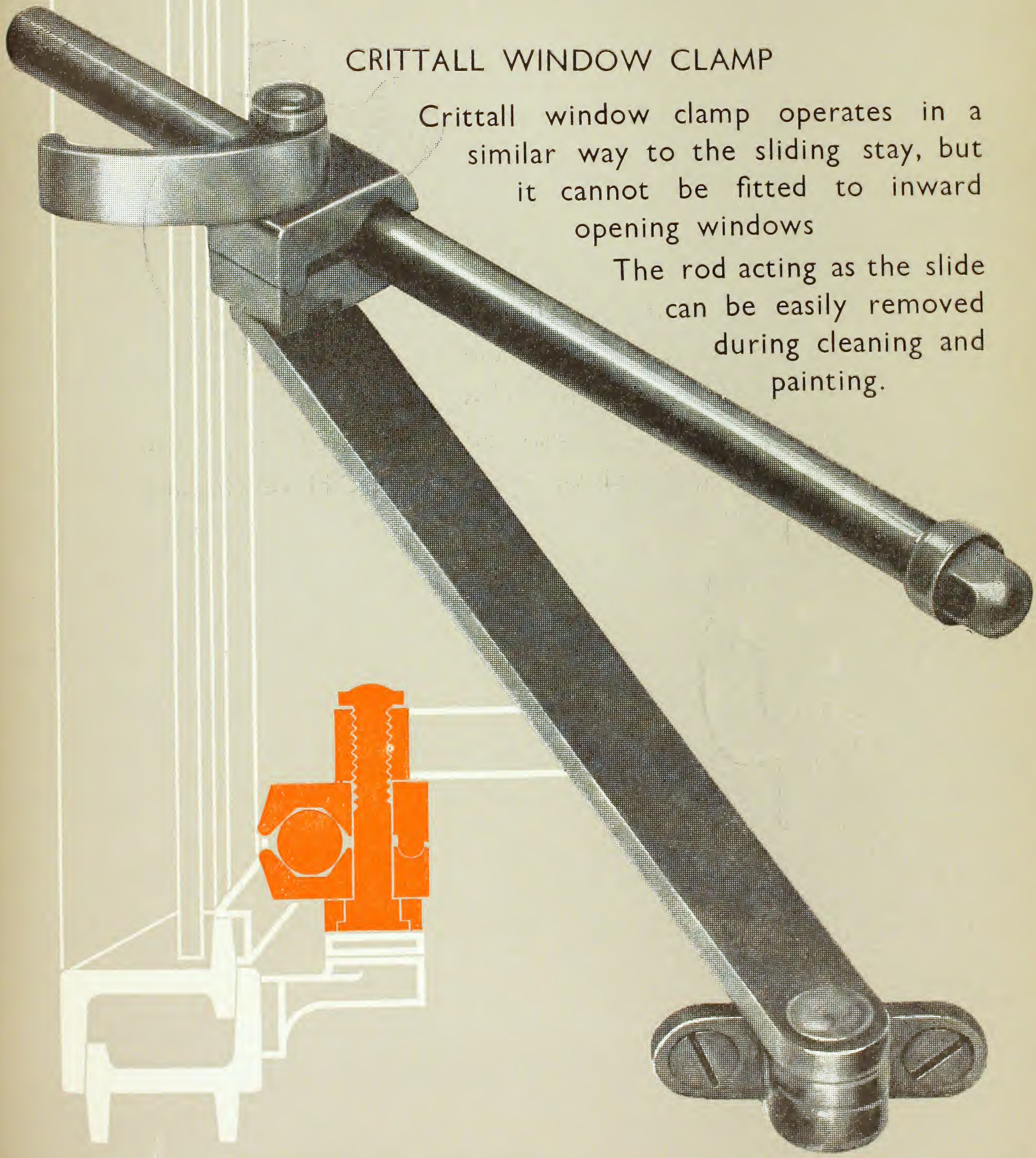
2697 H HANDLE

ALTERNATIVE

SLIDING STAY

Non-projecting sliding stays can be applied to outward or inward opening casements.

CASEMENT STAYS

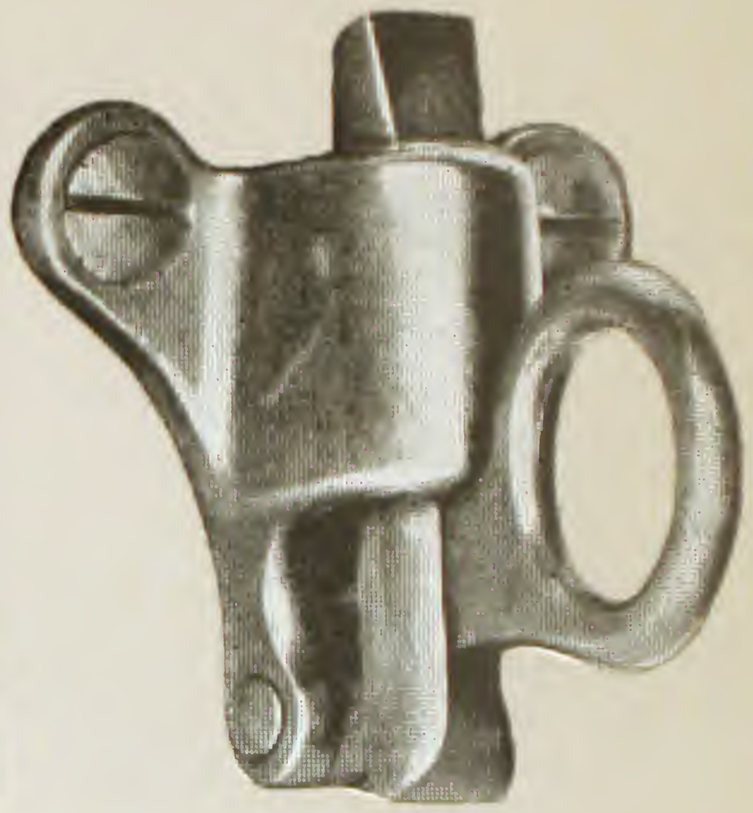


CRITTALL WINDOW CLAMP

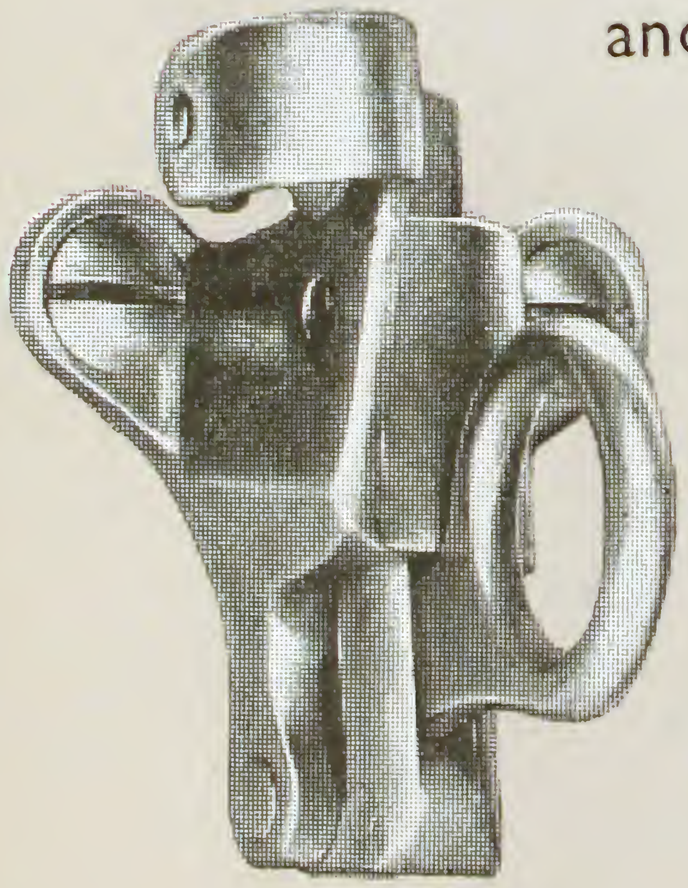
Crittall window clamp operates in a similar way to the sliding stay, but it cannot be fitted to inward opening windows

The rod acting as the slide can be easily removed during cleaning and painting.

SPRING CATCHES

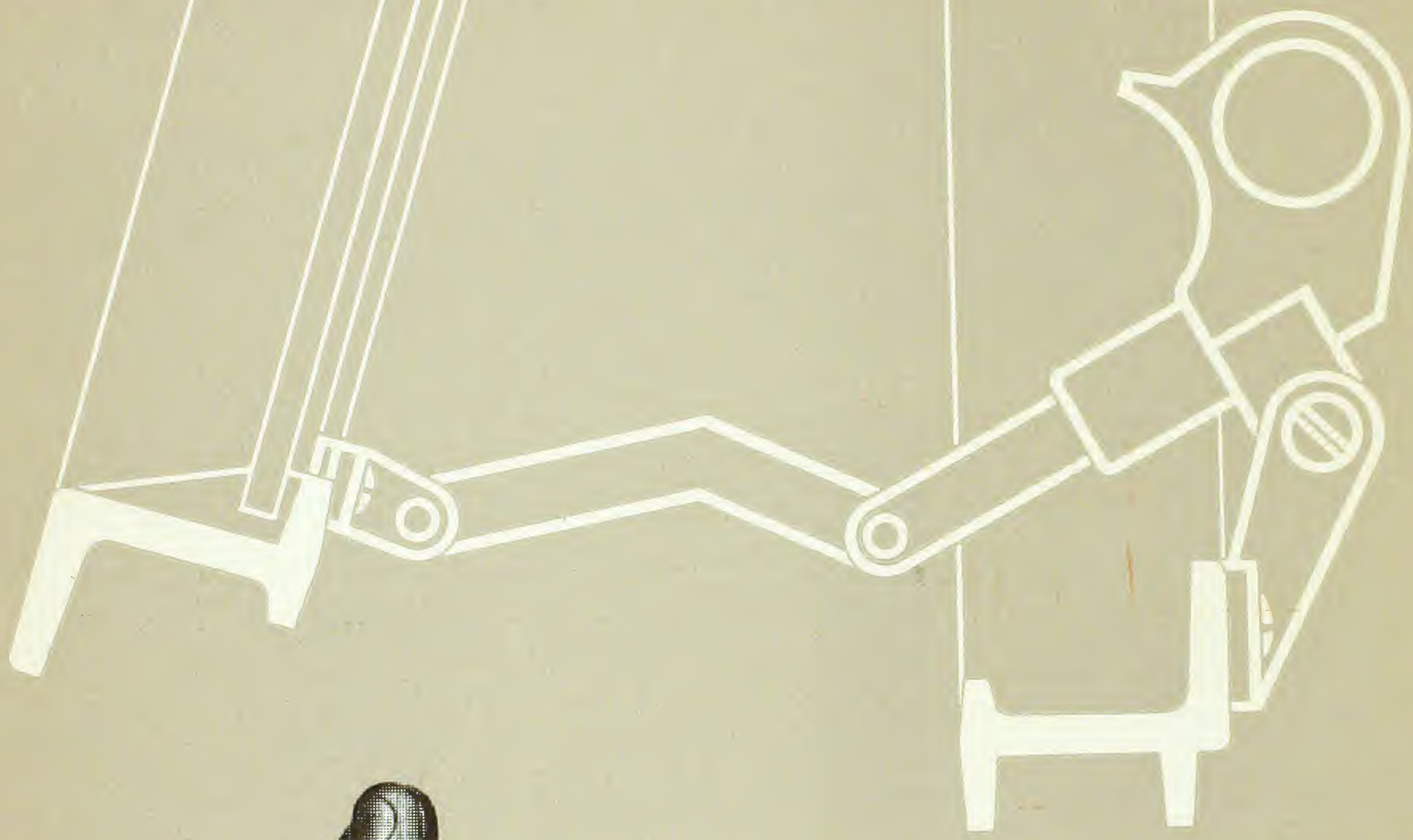


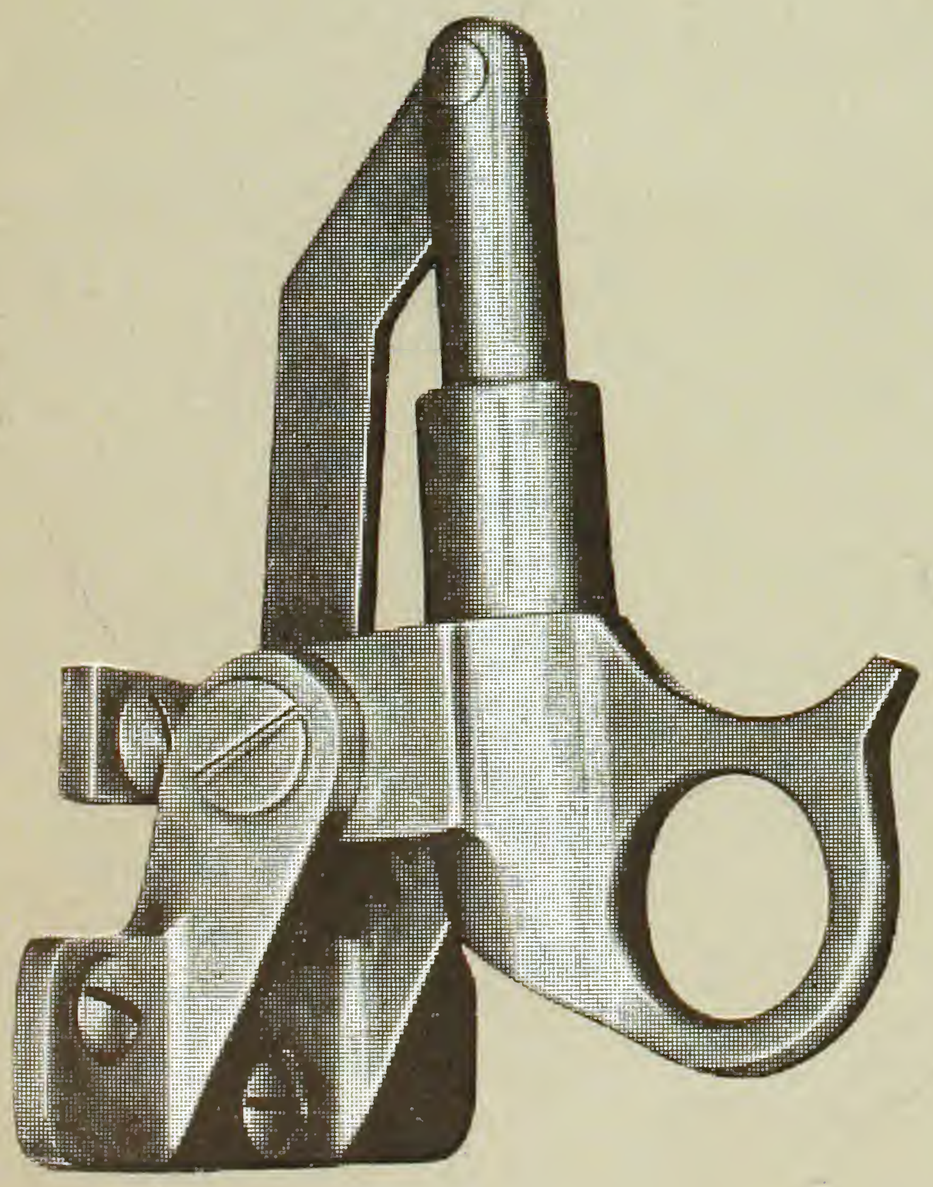
Spring catch for operation by hand or long arm. This type can also be used with pully eye and cord for operating H.C.H ventilators.



Spring catch for operating B.H ventilators by cord or long arm.

SPRING STAY

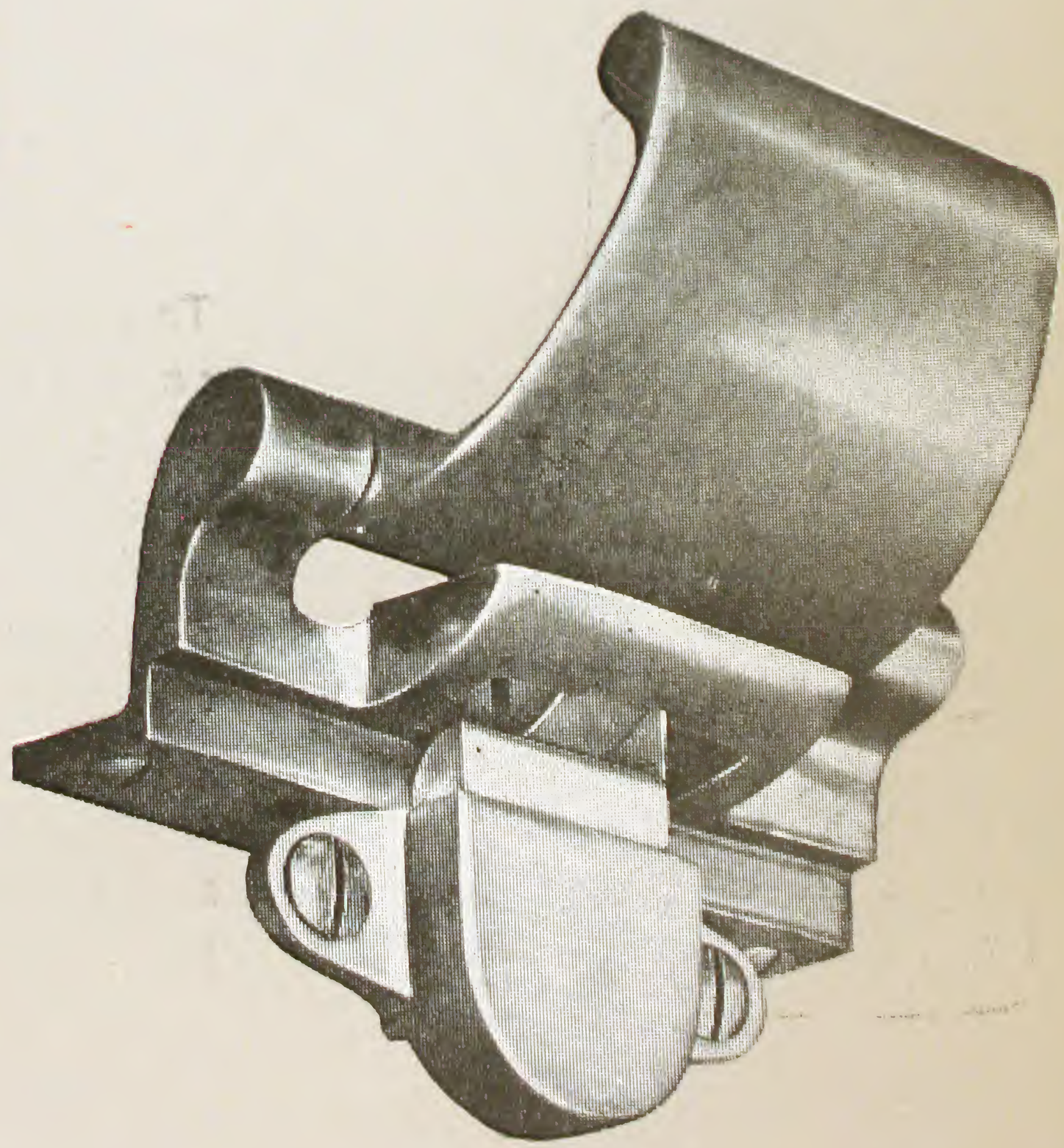




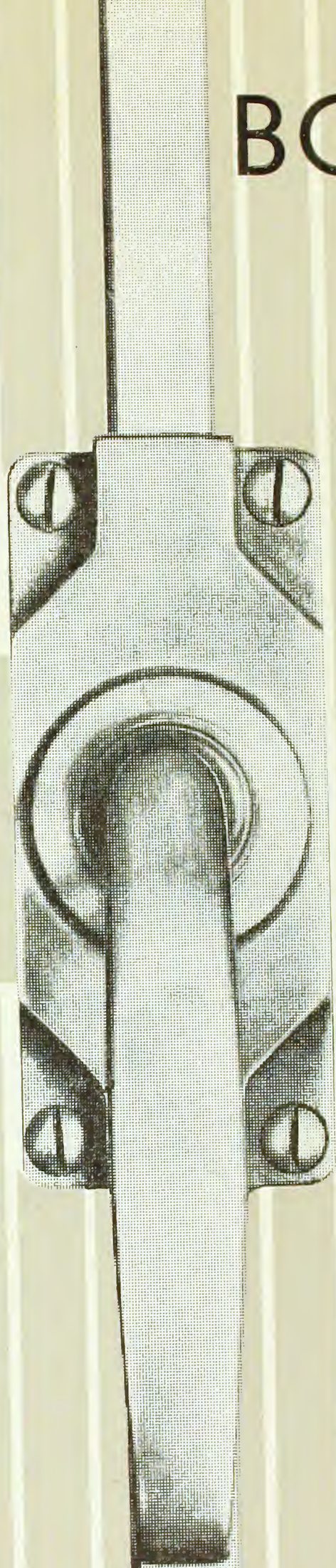
This fitting can be applied to small top-hung and horizontally - centre - hung casements and is particularly useful on small top-hung night ventilators. It has all the positive effect of a stay with the operating ease of a catch and remains securely self-locked in open or closed position.

BALANCE WINDOW CATCH

Fitted at the cill of the lower coupled ventilator this catch enables the entire balance window unit to be operated with one hand.

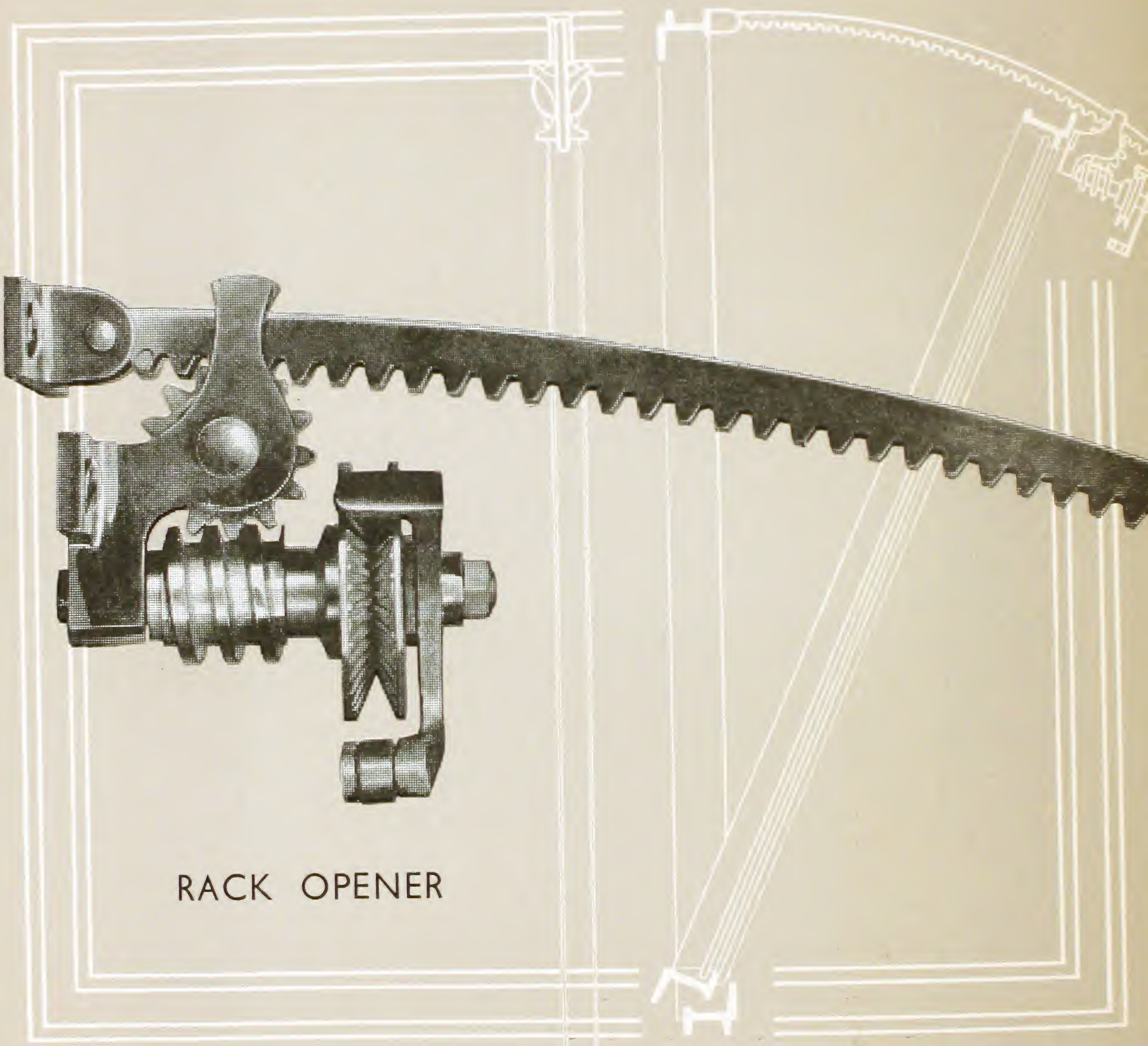


ESPAGNIOLETTE BOLT



Espagniolette bolt for inward and outward opening folding casements and doors.

TRANSOME



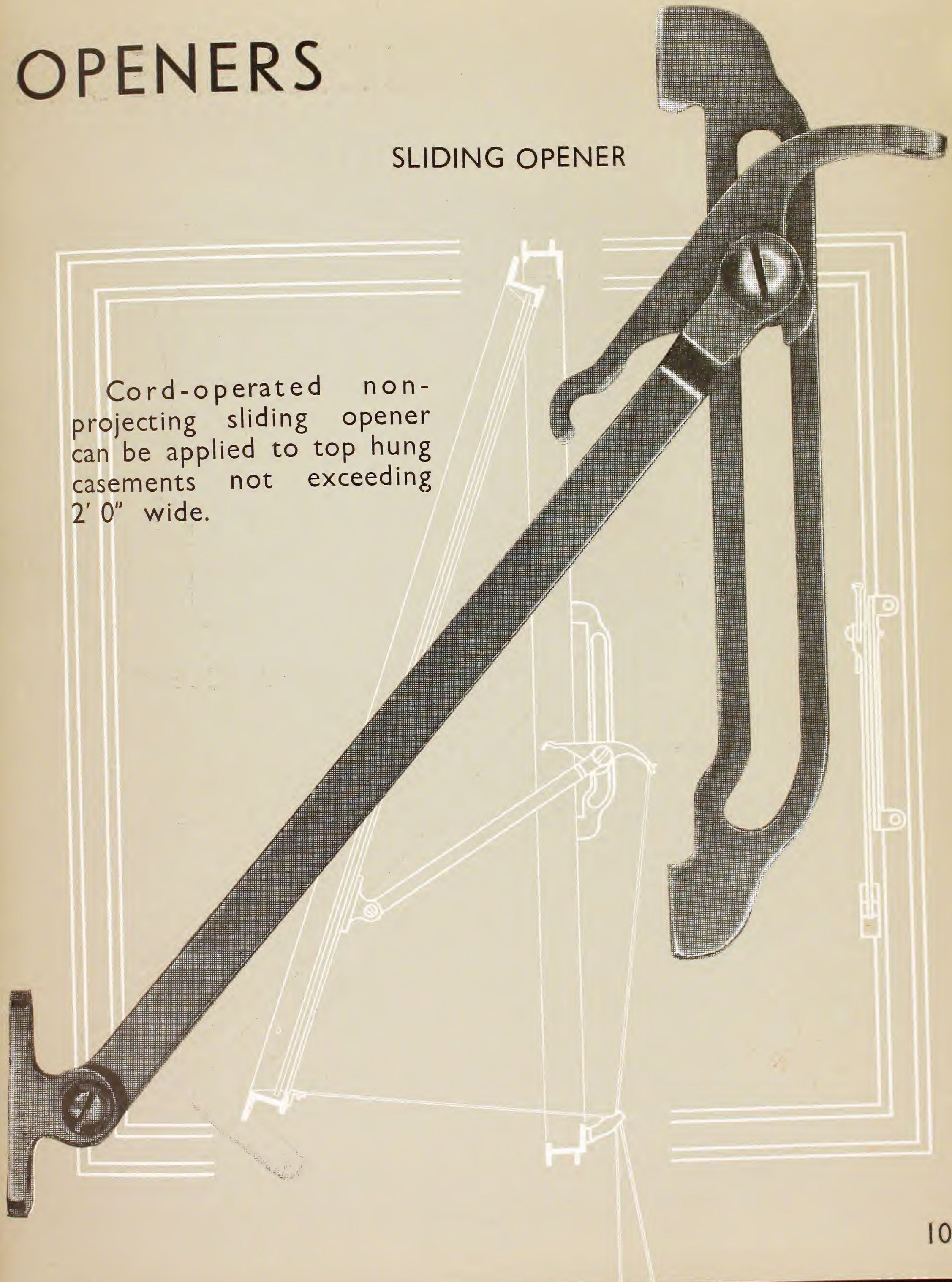
RACK OPENER

Cord-operated rack opener for top-hung or bottom-hung casements up to 3'0" wide

OPENERS

SLIDING OPENER

Cord-operated non-projecting sliding opener can be applied to top hung casements not exceeding 2′ 0″ wide.



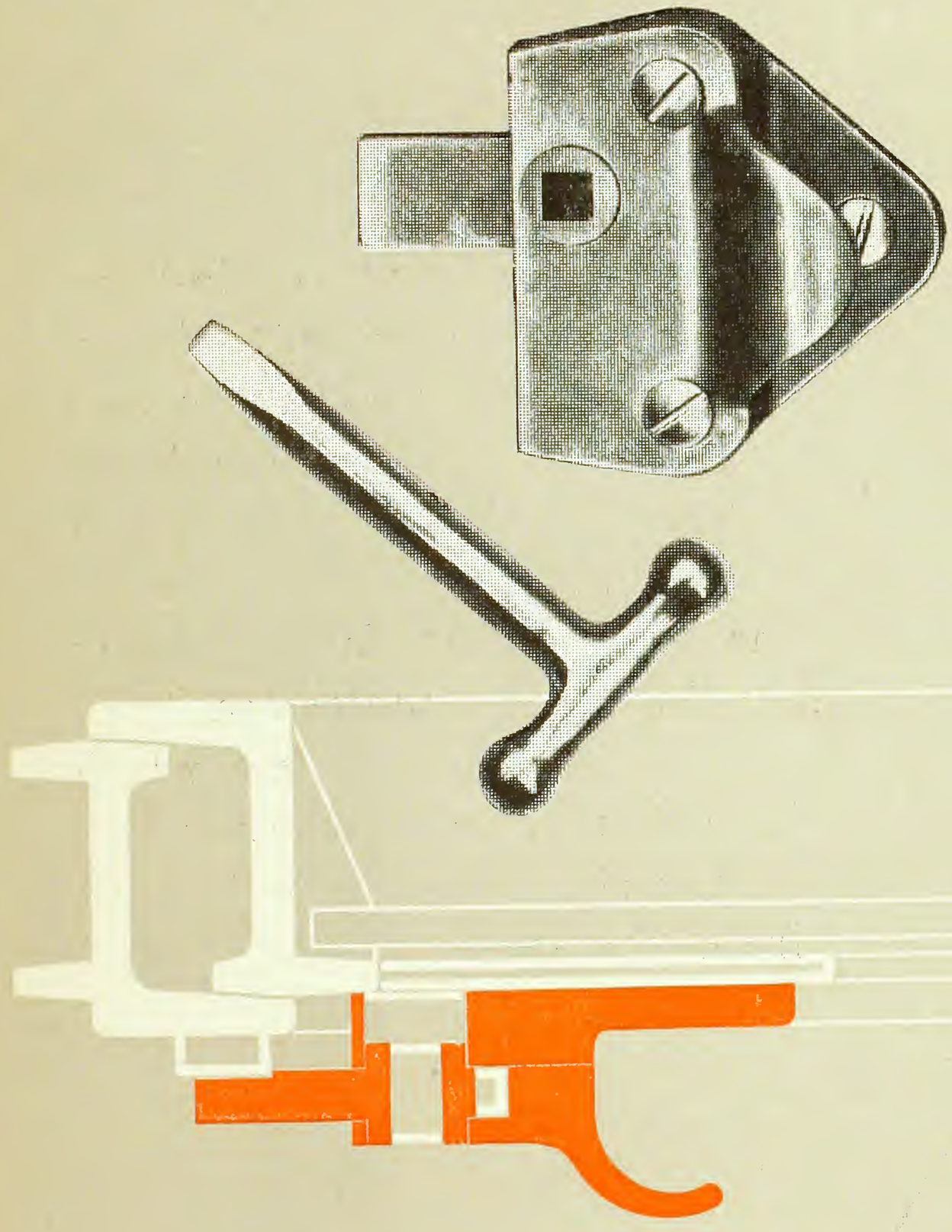
MISCELLANEOUS

Non-rattling cabin hook for doors and inward opening casements. The spring knob keeps the holed end of the shank constantly pressed against the staple, allowing ample but not free movement.

CABIN HOOK

CORD CLEAT

FITTINGS

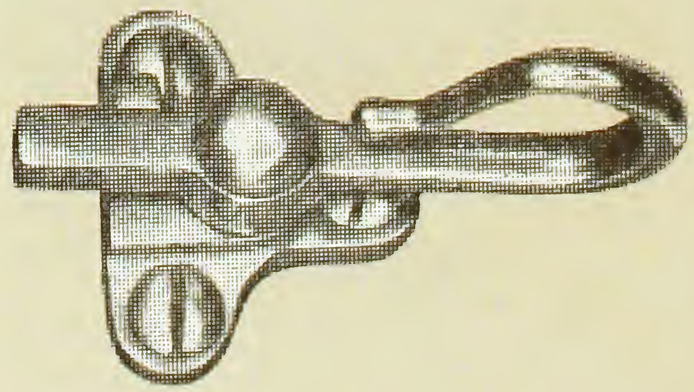


CARRIAGE LOCK

Carriage lock for use on windows which are required to open for cleaning or occasional passage and not for ventilation.

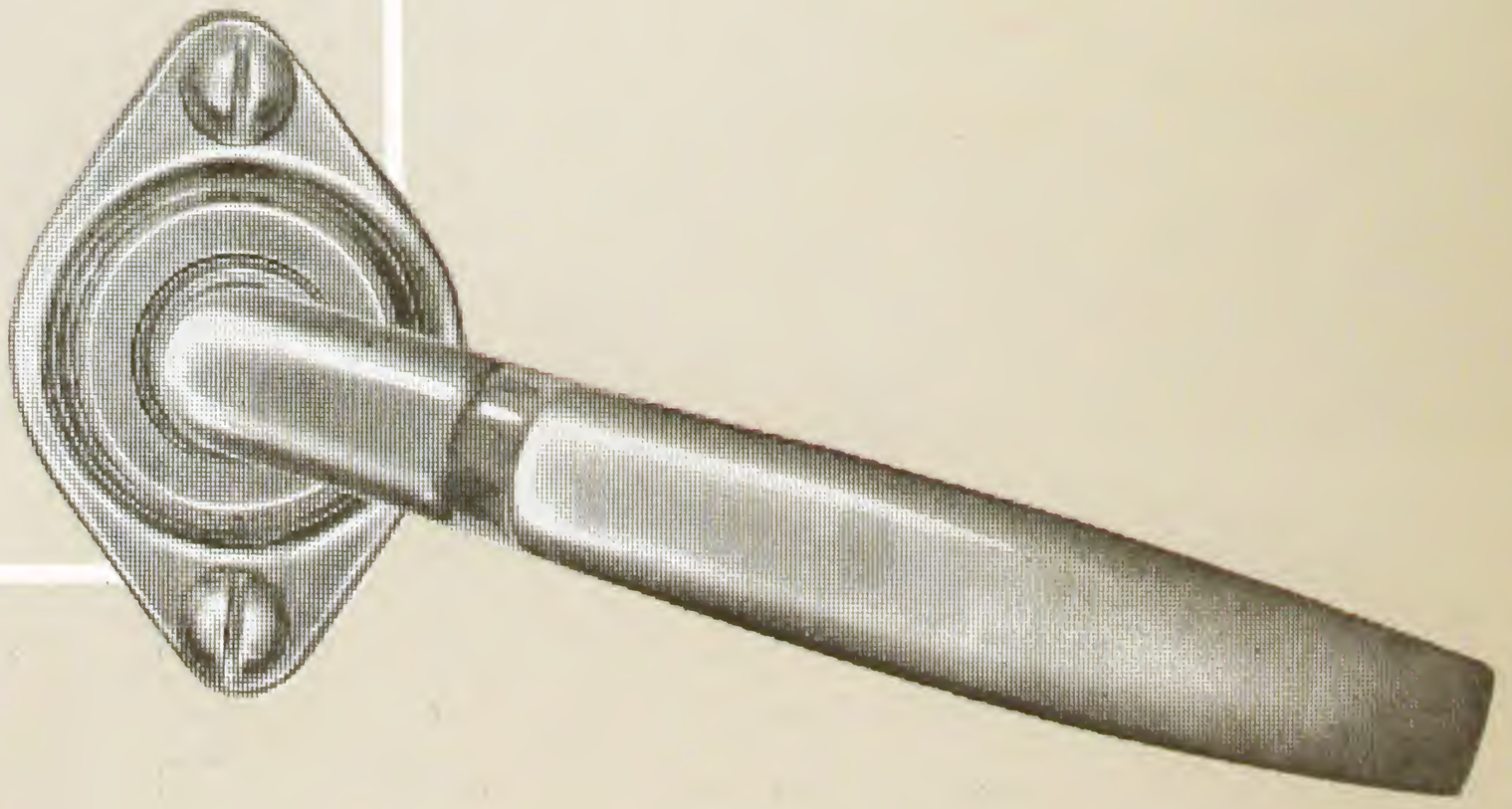
TURNBUCKLE

Turnbuckle used for small ventilators on which normal casement fittings would be out of place.

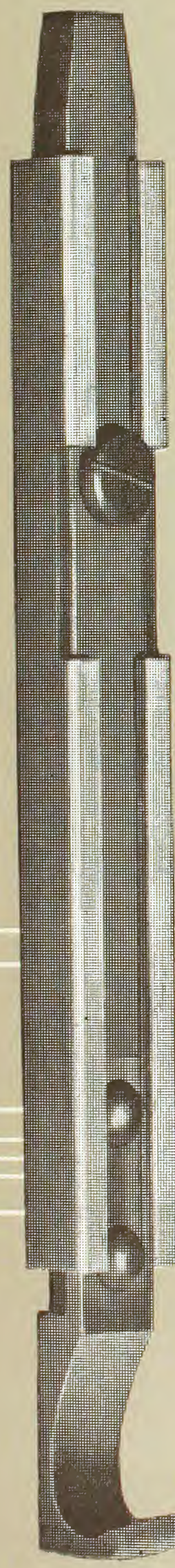


CRITTALL CASEMEN

Lever handle fitted to side-hung and folding casement doors. The lock is a Yale cylinder two bolt mortice type operable by a key on the outside, and a non-removable finger turn on the inside. On folding doors the lock and handles are fitted to the last closing leaf which is, unless otherwise specified, on the right hand side looking from the inside.

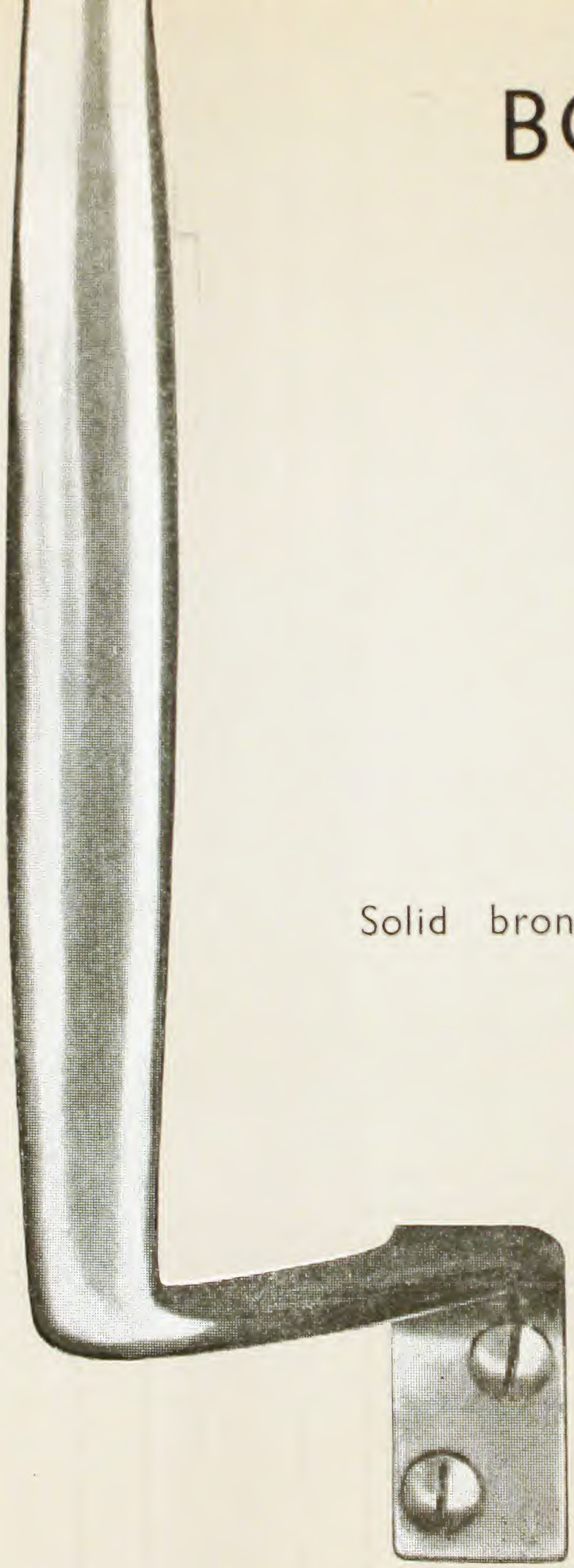


DOOR FITTINGS



Bolts are fitted at head and cill of side hung and at head and cill of each leaf of folding doors. They are concealed inside the section.

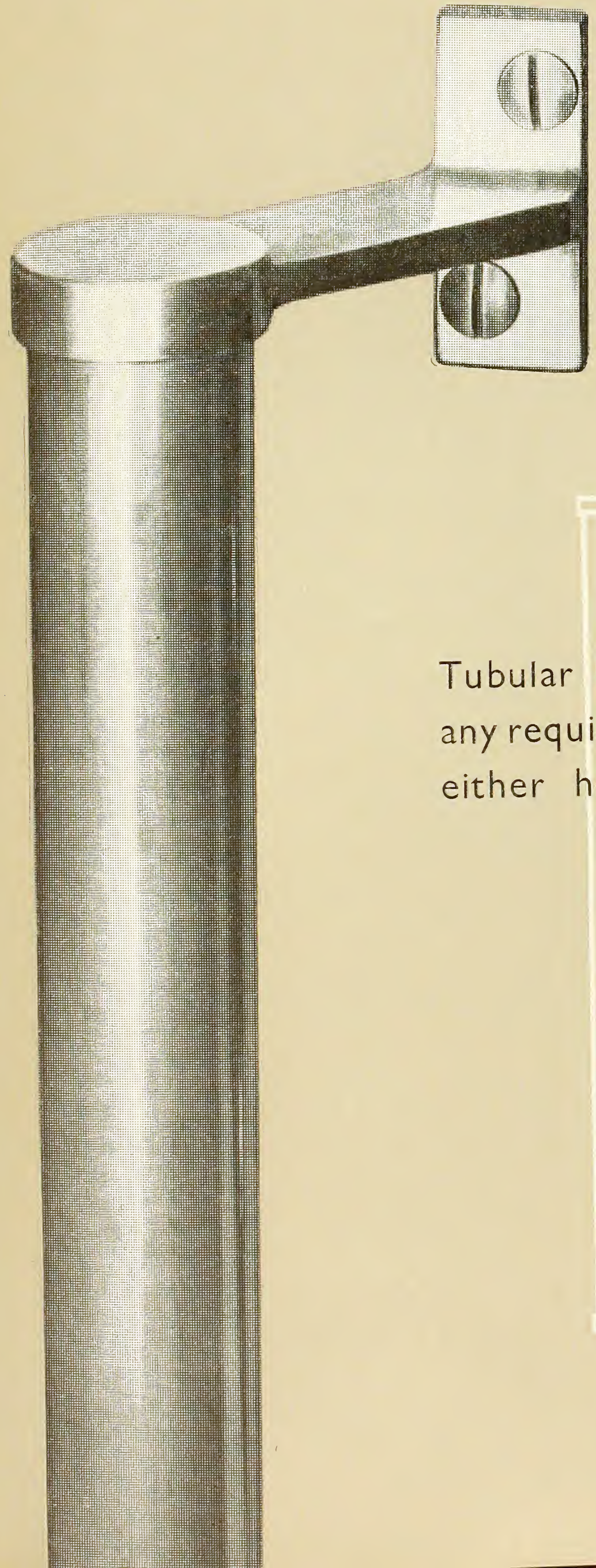
BOW HANDLES



Solid bronze, overall length 11"

OLES

FOR SWING DOORS



Tubular bow handle can be made any required length and can be fitted either horizontally or vertically.

Vent bracket fitted at head of horizontally centre hung and bottom hung open in casements.

Reveal type handle

ARENS CONTROL

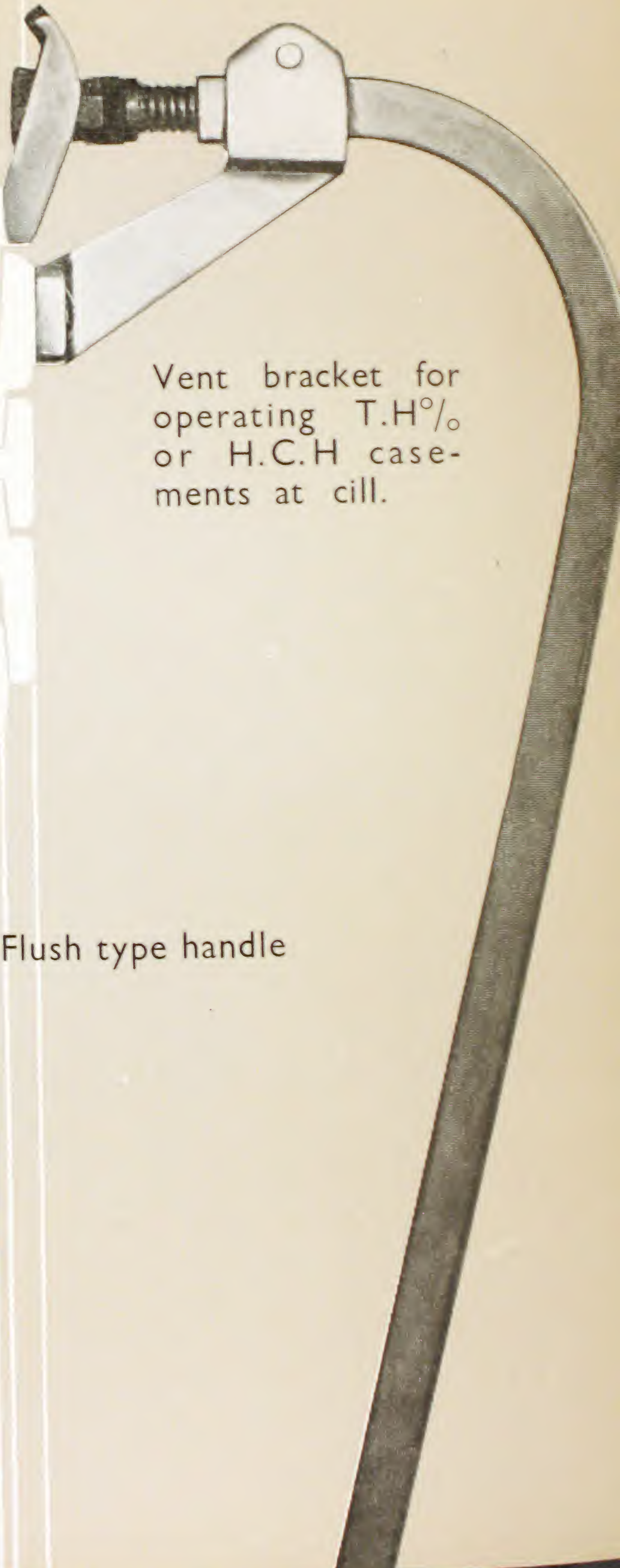
is a means of operating any type of ventilator otherwise out of reach.

CONSTRUCTION

This gear consists of a continuous coil spring enclosed in a square brass casing attached to the metal window frame and held in compression by a steel cable running through its centre. It is operated by a bow handle which moves in a slide fixed to the metal window itself, or the surrounding masonry. Two types of handle are available, one of which is illustrated here, and the other on the following page. Two notches into which the handle may be turned are provided in the slide for the purpose of locking the ventilator in a closed or full opened positon.

FINISH

Casing, left dull for painting after installation or, at extra cost, bronzed and polished. The handle, slide and vent bracket are of polished bronze.



Vent bracket for operating T.H°/₀ or H.C.H casements at cill.

Flush type handle

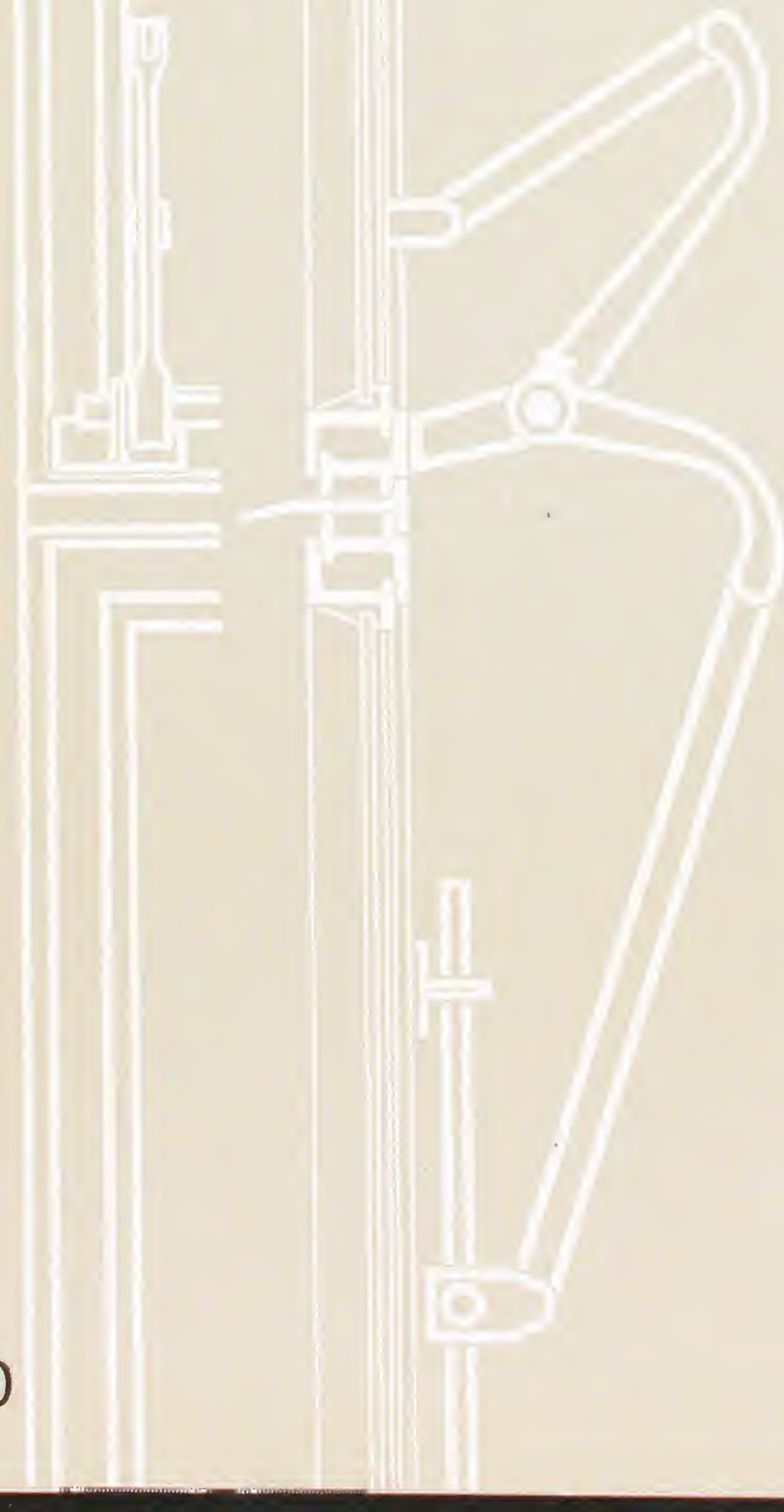
ARENS CONTROL

An example of Arens Control operating a top-hung open-out ventilator above two side-hung open-out casements with fixed meeting rail.

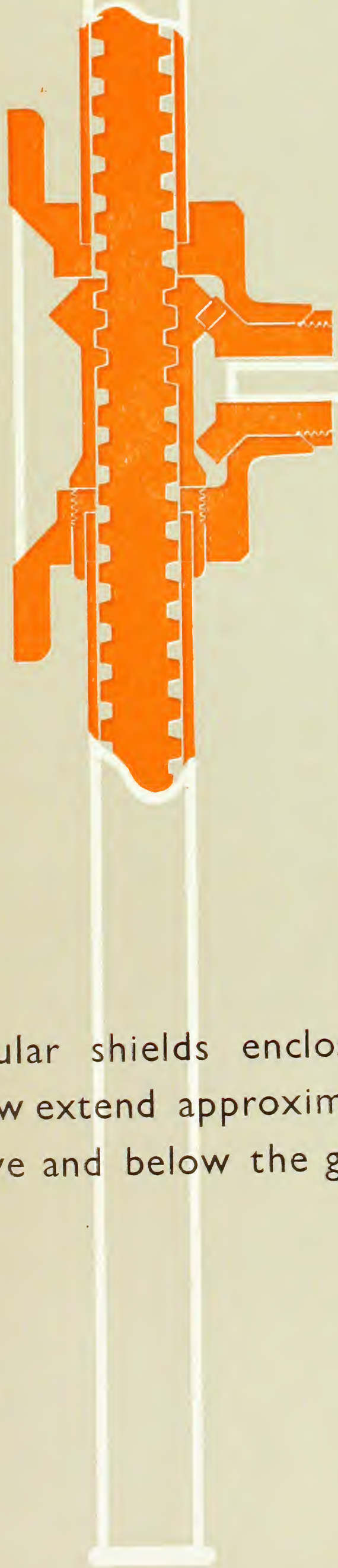
CRITTALL

Crittall screw gearing can be supplied to operate any type of ventilator or series of ventilators. It is manufactured in two sizes, ½" and ¾", these dimensions being the diameters of the rods used.

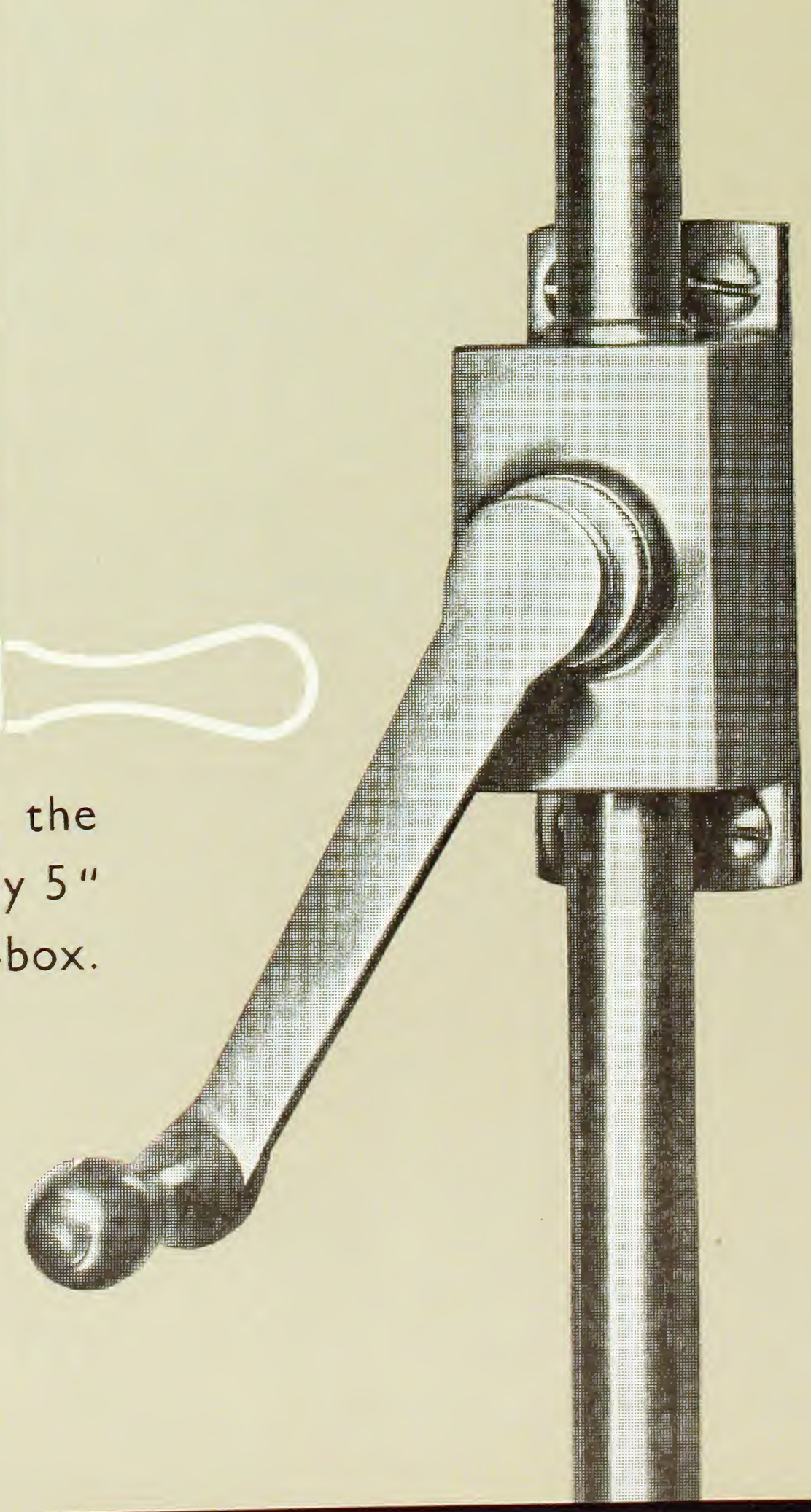
When necessary the ventilator can be fitted with quick release bracket so that it may be fully opened for cleaning.



SCREW GEARING



Tubular shields enclosing the screw extend approximately 5" above and below the gear-box.



The foregoing pages deal only with Crittall purpose-made casements. Catalogues or leaflets on other Crittall products will be sent on application. These include special illustrated catalogues on Crittall Hospital Windows (No. 88), and on Crittall Windows for Schools (No. 95), which are supplemental to this volume.

OTHER CRITTALL PRODUCTS

CASEMENTS IN SOLID BRONZE

STANDARD METAL WINDOWS with and without wood surrounds, casement doors and fanlights, lead glazing and all kinds of bay windows.

REINFORCED SASHES, standard and purpose made, for warehouses and industrial buildings.

LANTERN-LIGHTS, ROOF-LIGHTS AND LAY-LIGHTS.

GLAZED METAL SCREENS AND PARTITIONS for all internal sub-divisions: bedside screens for hospital wards.

PRESSED STEEL doors and door frames.

DOUBLE HUNG SASHES.

HORIZONTALLY SLIDING WINDOWS.

SHOP FRONTS IN STEEL OR BRONZE.

FIRE-PROOF DOORS.

CRITTALL SECTIONAL STEEL GREENHOUSES AND GARDEN FRAMES.

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